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Course Design Guide (Final)

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1 Introduction

1.1 BACKGROUND

The Traffic Management Advisor (TMA) is an Air Route Traffic Control Center (ARTCC)-based, decision-support tool designed to optimize the flow of aircraft into capacity constrained areas, and to provide a consistent flow of traffic to the runway. It is operational at all 20 domestic Centers and at select Terminal Radar Approach Controls (TRACONs). Additional enhancements to the tool, such as Point-in-Space Metering, the expanded use of Adjacent Center Metering (ACM), and deployment to additional airports, are integral parts of the Federal Aviation Administration (FAA) NextGen Implementation Plan (NGIP).

In 2009, the Radio Technical Commission for Aeronautics (RTCA) NextGen Mid-Term Implementation Task Force, a consortium of more than 300 members from the aviation community, assessed the progress of NextGen implementation and presented the FAA with a unified set of priorities for NextGen's next 5 years. Recommendations for the cruise environment, in support of better utilization of available airspace to increase capacity and reduce delays, included expansion of TMA capabilities. In addition, the Task Force noted a lack of standardized TMA training. The final report included a requirement for an improved training program for air traffic control and traffic management personnel at sites where TMA is deployed, with the goals of increasing the consistent use of time-based metering (TBM) and completing training of all field facility personnel by December 31, 2012.

Currently, a national training program for the TMA system does not exist, resulting in a lack of understanding of its full capabilities, local rather than national adaptation of the tool, and a lack of basic concepts, understanding, and standard operating procedures.

Initial discussion and analysis of the requirements (including customer input) suggest that four instances of the TMA training course will need to be developed and deployed. These preliminary course requirements were identified by the customer, the AJL-14 Technical Content Lead (TCL), and the AJL-43 Training Development Lead (TDL) during the initial requirements meeting.

Consensus was found among subject matter experts (SMEs) that a portion of this training would have to occur at the local level. A local adaptation for airspace, policies, and procedures is required for effective TMA use. While there are many elements of the TMA

training that can be delivered universally, there are other areas where locally adapted information will be necessary for maximum effectiveness.

To enhance the standardized and most efficient use of the tool, the FAA created an action plan in their response to the RTCA Task Force recommendations to create an improved TMA training program for all field facility users.

1.2 PURPOSE AND SCOPE

This Course Design Guide (CDG) provides a road map for development of the FAA's Traffic Management Advisor (TMA) curriculum. It includes the goals and/or outcomes for the course, the skills and knowledge to be provided to students, and the methods and techniques to be used in the conduct of the course. All information needed to develop the course, including objectives, testing techniques; tools and equipment, teaching strategies, and content are outlined.

1.3 DOCUMENT ORGANIZATION

This document is organized into the following major sections:

- Introduction— includes the background, purpose and scope, list of applicable references, course approach, instructional delivery platforms, instructional methods, training modules and lessons, training activities and practical exercises, testing methods, equipment, course catalog entries, and training sites
- Course Design Guide Data Sheets— shows each course organization, terminal learning objectives, enabling learning objectives, technical content outline, instructional methods, learning type, test type, and cross reference matrix
- Course Schedule— provides an overview of the course chronology
- Supplementary Information— includes an acronym list, abbreviations and glossary of terms, and list of government-furnished information.

1.4 LIST OF APPLICABLE REFERENCES

The following references will be used during the development of TMA course materials:

- FAA-STD-028C
- Traffic Management Advisor Operator's Manual 3.12.0
- Government-furnished information (GFI) listed in Section 4 of this document.

1.5 COURSE APPROACH

A comprehensive Cadre course will be developed and adapted into seven additional sub-courses for the remaining target audiences using modularized content for a total of 10 courses as detailed in Table 1.

Table 1 - TMA Courses

Course	Instructional Method	Estimated Hours of Instruction
Traffic Management Advisor (TMA) for the Cadre	WBT	4 Hours
	ILT/SBL	76 Hours
Traffic Management Advisor (TMA) for ATCSCC	WBT	3 Hours 30 Minutes
	ILT/SBL delivered by Cadre	40 Hours
Traffic Management Advisor (TMA) for TMC En Route	WBT	4 Hours
	ILT/SBL delivered by Cadre	66 Hours
Traffic Management Advisor (TMA) for TMC Terminal	WBT	3 Hours 30 Minutes
	ILT/SBL delivered by Cadre	60 Hours
Traffic Management Advisor (TMA) for ATCS En Route	WBT	35 Minutes
	ILT/SBL delivered by Cadre	6 Hours
Traffic Management Advisor (TMA) for ATCS Terminal	WBT	1 Hour 15 Minutes
	ILT/SBL delivered by Cadre	1 Hour 40 Minutes
Introduction to TBFM for TMC Academy	ILT	1 Hour
Introduction to TBFM for ATCS En Route (Academy)	ILT	1 Hour
Introduction to TBFM for ATCS Terminal (Academy)	ILT	1 Hour
Traffic Management Advisor (TMA) for Users	CD-ROM	20 Minutes

1.6 INSTRUCTIONAL DELIVERY PLATFORM

The TMA courses detailed in Table 1 will be delivered using one or a combination of the delivery platforms shown below:

- Web-based Training (WBT) is used when large numbers of geographically dispersed individuals need training. Web-based training will provide links to other learning resources, such as references and/or a facilitator who can provide guidelines and clarification of instructional content. WBT will be delivered

through the FAA electronic learning management system (eLMS)

- Instructor Led Training (ILT) is used for immediate instructor/student interaction, and/or group activity. This media type may include multimedia, such as video, simulations, and/or computer graphics. ILT will be delivered at Atlantic City by an FAA instructor. Additional ILT will be delivered by the Cadre at their local facilities
- Simulation-based Labs (SBL) are used to practice or perform assessment on actual equipment or under realistic job conditions. This practice may be used to refine cognitive or motor skills or to integrate the performance of several tasks using support strings. SBL will be delivered in combination with ILT and will utilize FAA support strings. Additional instruction will be delivered by the Cadre at their local facilities
- Computer-based Training (CBT) in the form of Compact Disk (CD) or Digital Versatile Disk (DVD) Read Only Memory (ROM) (CD-ROM) (DVD-ROM) is used when large numbers of geographically dispersed individuals need training. CBT will be primarily informational and will not be tracked or assessed.

1.7 INSTRUCTIONAL METHODS

The primary instructional methods used throughout this course include the following as required by each lesson detailed in the Course Design Data Sheets:

- Presentation - Instructors will deliver lecture based presentations to learners in the classroom environment to convey complex concepts. Presentations will also be used in WBT to convey overviews, buttonology, and the capabilities of TMA
- Discussion - Learners will discuss presented content to share observations, insights, and lessons learned with peers. Additionally, local adaptations will be discussed to introduce alternative TMA operational methods
- Scenario and Concept Demonstration - Instructors will present operational scenarios to learners in the classroom and support string environments. Learners will watch demonstrations, and then repeat learned behaviors. WBT will also provide scenario demonstrations in the form of animations and simulations.

1.8 TRAINING MODULES AND LESSONS

The modules and lessons included in each TMA course are listed below.

Course Title: Traffic Management Advisor (TMA) Cadre Course

WBT Module 1: Introduction

Lesson: TMA Overview

WBT Module 2: GUI Features

Lesson: TMA GUI Features

Lesson: PGUI vs. TGUI

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display

WBT Module 4: PGUI Displays

Lesson: PGUI Display

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification

Lesson: Use of the Status and Schedule Window

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification

WBT Module 7: Additional Features

Lesson: TGUI Features

WBT Module 9: Setup Options

Lesson: PGUI Display Capabilities

ILT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display

ILT Module 4: PGUI Displays

Lesson: Timeline Setup Window Manipulation

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification

Lesson: Aircraft Swap

Lesson: Use of the Status and Schedule Window

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation

ILT Module 7: Additional Features

Lesson: TGUI Features Data Production

ILT Module 8: PGUI Map Display Options

Lesson: PGUI Map Options Identification

Lesson: PGUI Map Options Modification

ILT Module 9: Setup Options

Lesson: PGUI Display Creation

ILT Module 10: Map Options

Lesson: PGUI Map Options

Lesson: PGUI Map Manipulation

ILT Module 11: Default File Load Options

Lesson: Manipulation of Files Using the Load Display Files Panel

ILT Module 12: Sequence Options

Lesson: Sequencing and Its Effects

Lesson: Manipulation of the Sequence Lists Using the Sequence List Options Panel

ILT Module 13: PGUI Timeline Options

Lesson: Definition of Timeline Options Panel

Lesson: Creation of an PGUI Timeline Display Using the Timeline Options Panel

ILT Module 14: Control Panel

Lesson: Datablock Options Capabilities

Lesson: Manipulation of an Aircraft's Datablock Element Display and Color Scheme

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions

Lesson: Use of the PGUI Traffic Management Functions

ILT Module 16: En Route Departure Capability

Lesson: Traffic Flows

Lesson: Management of Traffic Flows Using the EDC Tool

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change

Lesson: Communicating Anomalies

ILT Module 18: Procedures

Lesson: Procedures

Course Title: Traffic Management Advisor (TMA) for ATCSCC

WBT Module 1: Introduction

Lesson: TMA Overview

WBT Module 2: GUI Features

Lesson: TMA GUI Features

Lesson: PGUI vs. TGUI

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display

WBT Module 4: PGUI Displays

Lesson: PGUI Display

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification

WBT Module 7: Additional Features

Lesson: TGUI Features

WBT Module 9: Setup Options

- Lesson: PGUI Display Capabilities**
- ILT Module 3: Timeline Graphical User Interface (TGUI) Displays
 - Lesson: TGUI Display**
- ILT Module 4: PGUI Displays
 - Lesson: Timeline Setup Window Manipulation**
- ILT Module 5: Status and Scheduling Parameters
 - Lesson: Status and Schedule Window Scheduling Parameters Identification**
 - Lesson: Aircraft Swap**
 - Lesson: Use of the Status and Schedule Window (continued)**
- ILT Module 6: Scheduling Aircraft and Traffic Management
 - Lesson: Aircraft Scheduling Window Manipulation**
- ILT Module 7: Additional Features
 - Lesson: TGUI Features Data Production**
- ILT Module 8: PGUI Map Display Options
 - Lesson: PGUI Map Options Identification**
 - Lesson: PGUI Map Options Modification**
- ILT Module 9: Setup Options
 - Lesson: PGUI Display Creation**
- ILT Module 10: Map Options
 - Lesson: PGUI Map Options**
 - Lesson: PGUI Map Manipulation**
- ILT Module 12: Sequence Options
 - Lesson: Sequencing and Its Effects**
- ILT Module 13: PGUI Timeline Options
 - Lesson: Definition of Timeline Options Panel**
 - Lesson: Creation of an PGUI Timeline Display Using the Timeline Options Panel**
- ILT Module 14: Control Panel
 - Lesson: Datablock Options Capabilities**
 - Lesson: Manipulation of an Aircraft's Datablock Element Display and Color Scheme**
- ILT Module 15: Traffic Management with the TMA PGUI
 - Lesson: PGUI Traffic Management Functions**
 - Lesson: Use of the PGUI Traffic Management Functions**
- ILT Module 16: En Route Departure Capability
 - Lesson: Traffic Flows**
 - Lesson: Management of Traffic Flows Using the EDC Tool**
- ILT Module 17: Problem Solving
 - Lesson: Troubleshooting and Adaptation Change**
 - Lesson: Communicating Anomalies**
- ILT Module 18: Procedures
 - Lesson: Procedures**

Course Title: Traffic Management Advisor (TMA) for TMC En Route

WBT Module 1: Introduction

Lesson: TMA Overview

WBT Module 2: GUI Features

Lesson: TMA GUI Features

Lesson: PGUI vs. TGUI

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display

WBT Module 4: PGUI Displays

Lesson: PGUI Display

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification

WBT Module 7: Additional Features

Lesson: TGUI Features

WBT Module 9: Setup Options

Lesson: PGUI Display Capabilities

ILT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display

ILT Module 4: PGUI Displays

Lesson: Timeline Setup Window Manipulation

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification

Lesson: Aircraft Swap

Lesson: Use of the Status and Schedule Window

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation

ILT Module 7: Additional Features

Lesson: TGUI Features Data Production

ILT Module 8: PGUI Map Display Options

Lesson: PGUI Map Options Identification

Lesson: PGUI Map Options Modification

ILT Module 9: Setup Options

Lesson: PGUI Display Creation

ILT Module 10: Map Options

Lesson: PGUI Map Options

Lesson: PGUI Map Manipulation

ILT Module 12: Sequence Options

Lesson: Sequencing and Its Effects

ILT Module 13: PGUI Timeline Options

Lesson: Definition of Timeline Options Panel

Lesson: Creation of an PGUI Timeline Display Using the Timeline Options Panel

ILT Module 14: Control Panel

Lesson: Datablock Options Capabilities

Lesson: Manipulation of an Aircraft's Datablock Element Display and Color Scheme

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions

Lesson: Use of the PGUI Traffic Management Functions

ILT Module 16: En Route Departure Capability

Lesson: Traffic Flows

Lesson: Management of Traffic Flows Using the EDC Tool

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change

Lesson: Communicating Anomalies

ILT Module 18: Procedures

Lesson: Procedures

Course Title: Traffic Management Advisor (TMA) for TMC Terminal

WBT Module 1: Introduction

Lesson: TMA Overview

WBT Module 2: GUI Features

Lesson: TMA GUI Features

Lesson: PGUI vs. TGUI

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display

WBT Module 4: PGUI Displays

Lesson: PGUI Display

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification

Lesson: Use of the Status and Schedule Window

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification

WBT Module 7: Additional Features

Lesson: TGUI Features

ILT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display

ILT Module 4: PGUI Displays

Lesson: Timeline Setup Window Manipulation

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification

**Lesson: Use of the Status and Schedule Window
(continued)**

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation

ILT Module 7: Additional Features

Lesson: TGUI Features Data Production

ILT Module 8: PGUI Map Display Options

Lesson: PGUI Map Options Identification

Lesson: PGUI Map Options Modification

ILT Module 10: Map Options

Lesson: PGUI Map Options

Lesson: PGUI Map Manipulation

ILT Module 11: Default File Load Options

**Lesson: Manipulation of Files Using the Load Display Files
Panel**

ILT Module 12: Sequence Options

Lesson: Sequencing and Its Effects

**Lesson: Manipulation of the Sequence Lists Using the
Sequence List Options Panel**

ILT Module 13: PGUI Timeline Options

Lesson: Definition of Timeline Options Panel

**Lesson: Creation of an PGUI Timeline Display Using the
Timeline Options Panel**

ILT Module 14: Control Panel

Lesson: Datablock Options Capabilities

**Lesson: Manipulation of an Aircraft's Datablock Element
Display and Color Scheme**

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions

Lesson: Use of the PGUI Traffic Management Functions

ILT Module 16: En Route Departure Capability

Lesson: Traffic Flows

Lesson: Management of Traffic Flows Using the EDC Tool

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change

Lesson: Communicating Anomalies

ILT Module 18: Procedures

Lesson: Procedures

**Course Title: Traffic Management Advisor (TMA) for ATCS En
Route**

WBT Module 1: Introduction

Lesson: TMA Overview

ILT Module 5: Status and Scheduling Parameters

**Lesson: Status and Schedule Window Scheduling
Parameters Identification**

Lesson: Aircraft Swap

Lesson: Use of the Status and Schedule Window

**Lesson: Use of the Status and Schedule Window
(continued)**

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation

ILT Module 7: Additional Features

Lesson: TGUI Features

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions

Lesson: Use of the PGUI Traffic Management Functions

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change

ILT Module 18: Procedures

Lesson: Procedures

**Course Title: Traffic Management Advisor (TMA) for ATCS
Terminal**

WBT Module 1: Introduction

Lesson: TMA Overview

WBT Module 5: Status and Scheduling Parameters

**Lesson: Status and Schedule Window Scheduling
Parameters Identification**

ILT Module 5: Status and Scheduling Parameters

**Lesson: Status and Schedule Window Scheduling
Parameters Identification**

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change

ILT Module 18: Procedures

Lesson: Procedures

Course Title: Introduction to TBFM for TMC Academy

ILT Module 1: Introduction

Lesson: TMA Overview

**Course Title: Introduction to TBFM for ATCS En Route
Academy**

ILT Module 1: Introduction

Lesson: TMA Overview

**Course Title: Introduction to TBFM for ATCS Terminal
Academy**

ILT Module 1: Introduction

Lesson: TMA Overview

Title: Traffic Management Advisor (TMA) for Users

CD-ROM: Traffic Management Advisor for Users

1.9 TRAINING ACTIVITIES AND PRACTICAL EXERCISES

- Read and Review – Learners will read content in presentation materials and WBT, then review any questions with the instructor or with peers
- Exploratory Interactions – Learners will interact with media objects included in WBT, which will result in feedback
- Small Group Discussion – Learners will discuss presented content to share observations, insights, and lessons learned with peers. Additionally, local adaptations will be discussed to introduce alternative TMA operational methods
- Support String Simulations – Learners will perform actions on TMA support strings following performance criteria checklists to achieve desired results.

1.10 TESTING METHODS

One testing and remediation method will be used for each of the three course delivery methods.

- **WBT will be tested on eLMS** – Using this delivery method, unscored electronic knowledge checks will be presented to the learner throughout lesson instruction.

One scored electronic test will be presented to the learner at the conclusion of each lesson. The learner will have two attempts to correctly answer one randomized question per ELO. The cumulative score of all combined lessons will be used to determine the overall course score.

If the learner fails both test attempts for any one ELO, they will have the opportunity to review the course content for that ELO and gain an additional opportunity to pass the test. The learner will be able to repeat the course content and attempt the tests until they receive a passing score.

- **ILT will be tested on paper or electronically** – Using this delivery method, unscored knowledge checks will be presented to the learner throughout lesson instruction. These may include student discussion or written responses.

One scored electronic or written test will be presented to the learner at the conclusion of each lesson. For electronic tests, the learner will have two attempts to correctly answer one randomized question per ELO. For written tests, the learner

will have the opportunity to complete a second test if they do not meet the passing criteria in the first test. The cumulative score of all combined lessons will be used to determine the overall course score.

If the learner fails a test, the instructor will be required to work with that learner on a case by case basis to provide them with additional instruction as required.

- **SBL will be tested on paper or via lab performance** - Using this delivery method, unscored knowledge checks will be presented to the learner throughout lesson instruction. These may include student discussion, written responses, or performance criteria checklists.

One scored scenario will be graded at the conclusion of each lesson. The learner will be required to complete the scenario in accordance with a performance criteria checklist. The instructor will be required to track whether each student has successfully achieved the scenario end result in accordance with the provided performance criteria checklist. The learner will have two attempts at each scenario. The cumulative score of all combined lessons will be used to determine the overall course score.

If the learner fails to successfully complete a scenario, the instructor will be required to work with that learner on a case by case basis to provide them with additional instruction as required.

1.11 EQUIPMENT

Classroom

- HP xw4600 workstation (one per student)
- Linux GNOME desktop environment (one per student)
- Single HP 22 inch monitor (one per student)
- Standard desktop keyboard (one per student)
- Standard 3-button trackball mouse (one per student)
- TMA software version 3.12.0 capable of receiving live feeds (one per student)
- eLMS connectivity (one connection per student)
- Overhead Projector (one per instructor)
- Whiteboard (one per instructor)

- Screen (one per instructor).

1.12 COURSE CATALOG ENTRY

- Traffic Management Advisor (TMA) for the Cadre
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: The Traffic Management Advisor (TMA) for the Cadre course is designed for those that need to be able to demonstrate TMA subject matter expertise, use all elements of TMA to safely and efficiently move aircraft through the NAS, explain the impact of controllers' TMA actions and procedures on other elements of the NAS, and train other TMA users. There are no prerequisites for the course. The primary methods of instruction are web-based training and lecture supplemented by embedded questions and discussion points, video segments, animation, two- and three-dimensional graphics, student handouts, and simulated lab exercises.
 - Course Length: 80 hours
 - Course Prerequisites: None
- Traffic Management Advisor (TMA) for ATCSCC
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: The Traffic Management Advisor (TMA) for ATCSCC course is designed for those that need to be able to describe how TMA components are used to safely and efficiently manage metering, and explain the impact of TMA actions on other elements of the NAS as it applies to the duties of an ATCSCC specialist. There are no prerequisites for the course. The primary methods of instruction are web-based training and lecture supplemented by embedded questions and discussion points, video segments, animation, two- and three-dimensional graphics, student handouts, and simulated lab exercises.
 - Course Length: 43 hours 30 minutes

- Course Prerequisites: None
- Traffic Management Advisor (TMA) for TMC En Route
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: The Traffic Management Advisor (TMA) for TMC En Route course is designed for those that need to be able to use TMA components to safely and efficiently manage metering and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to the duties of a TMC at an ARTCC. There are no prerequisites for the course. The primary methods of instruction are web-based training and lecture supplemented by embedded questions and discussion points, video segments, animation, two- and three-dimensional graphics, student handouts, and simulated lab exercises.
 - Course Length: 70 hours
 - Course Prerequisites: None
- Traffic Management Advisor (TMA) for TMC Terminal
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: The Traffic Management Advisor (TMA) for TMC Terminal course is designed for those that need to be able to describe how TMA is used to manage metering and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to the duties of a TMC in the Terminal environment. The primary methods of instruction are web-based training and lecture supplemented by embedded questions and discussion points, video segments, animation, two- and three-dimensional graphics, student handouts, and simulated lab exercises.
 - Course Length: 63 hours 30 minutes
 - Course Prerequisites: TMC Terminal personnel are required to take the TMA for TMC En Route course as a

prerequisite if they have a controlling TGUI such as N90 and PHL TRACON

- Traffic Management Advisor (TMA) for ATCS En Route
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: The Traffic Management Advisor (TMA) for ATCS En Route course is designed for those that need to be able to describe how TMA is used to manage metering, use TMA data to meet metering requirements, and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to the duties of an Air Traffic Control Specialist at an ARTCC. There are no prerequisites for the course. The primary methods of instruction are web-based training and lecture supplemented by embedded questions and discussion points, video segments, animation, two- and three-dimensional graphics, student handouts, and simulated lab exercises.
 - Course Length: 6 hours 35 minutes
 - Course Prerequisites: None
- Traffic Management Advisor (TMA) for ATCS Terminal
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: The Traffic Management Advisor (TMA) for ATCS Terminal course is designed for those that need to be able to describe how TMA is used to manage metering and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to the job duties of an Air Traffic Control Specialist in the Terminal environment. There are no prerequisites for the course. The primary methods of instruction are web-based training and lecture supplemented by embedded questions and discussion points, video segments, animation, two- and three-dimensional graphics, student handouts, and simulated lab exercises.
 - Course Length: 2 hours 55 minutes

- Course Prerequisites: None
- Introduction to TBFM for TMC Academy
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: Introduction to TBFM for TMC Academy course is designed for those that need to describe TMA components and how TMA is used to manage metering as it applies to the job duties of a Traffic Management Coordinator. There are no prerequisites for the course. The primary method of instruction is instructor-led training.
 - Course Length: 1 hour
 - Course Prerequisites: None
- Introduction to TBFM for ATCS En Route (Academy)
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: Introduction to TBFM for ATCS En Route (Academy) course is designed to provide an overall introduction describing TMA components and how TMA is used to manage metering to newly hired Air Traffic Control Specialists. There are no prerequisites for the course. The primary method of instruction is instructor-led training.
 - Course Length: 1 hour
 - Course Prerequisites: None
- Introduction to TBFM for ATCS Terminal (Academy)
 - Course Number: To be determined during the development phase
 - Training Manager Name/ID: To be determined during the development phase
 - Course Description: Introduction to TBFM for ATCS Terminal (Academy) course is designed to provide an overall introduction describing TMA components and how TMA is used to manage metering to newly hired Air Traffic Control Specialists. There are no prerequisites for the

course. The primary method of instruction is instructor-led training.

- Course Length: 1 hour
- Course Prerequisites: None
- Traffic Management Advisor (TMA) for Users
 - Training Manager Name/ID: To be determined during the development phase
 - Description: The Traffic Management Advisor (TMA) for Users presentation is designed to describe the capabilities and purpose of TMA to non-FAA users of the National Airspace System.
 - Length: 20 minutes

1.13 TRAINING SITES

The Cadre will be trained at the William J. Hughes Technical Center (WJHTC) in Atlantic City, New Jersey. All other training audiences will be trained by the Cadre at their local facilities.

2 Course Design Guide Data Sheets

This section of the CDG represents the blueprint for the development of the TMA courses. Transfer of learning occurs when students perform the job tasks addressed by the terminal objectives within an authentic work environment.

The Course Design Guide Data Sheets contain course information in table form and include:

- Course Title
- Training Outcome
- Terminal Objective
- Enabling Objectives
- Lesson Number and Title
- Duration (hours)
- Cognitive (Knowledge-based, indicated by a “C”)
- Performance (Performance-based, indicated by a “P”)
- Technical Content Outline
- Instructional Methods and Media
- Test Type
- Developmental Notes, References, and Work Group Comments.

2.1 COURSE DESIGN TABLES

Course Title: Traffic Management Advisor (TMA) Cadre Course

Course Goal(s): The goals of this course are for the learner to be able to demonstrate TMA subject matter expertise, use all elements of TMA to safely and efficiently move aircraft through the NAS, explain the impact of controllers' TMA actions and procedures on other elements of the NAS, and train other TMA users.

WBT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 35 minutes
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a) TMA definition and purpose b) Relationship between other Traffic Management initiatives and TMA c) TMA's main components d) Who uses TMA e) Where TMA is used f) Hardware and software versions g) Pre-departure review settings	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments: NEED SME TECHNICAL INPUT: Need to relocate Pre-departure review settings. (FAA)				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	WBT ILT refresher	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	WBT ILT refresher	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70%	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases	WBT ILT refresher	C	Multiple choice

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.	safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary			
Development Notes:				
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, discuss how an aircraft route change affects the system with at least 70% accuracy.	1) Explain how changing an aircraft route affects nearby sectors and the NAS 2) Highlight how decisions and actions impact other airspaces (encourage “a cooperative environment through enhanced global situational awareness”) 3) Give an example of how an arrival over an inbound fix, such as an emergency aircraft, becomes a No Fix and how that affects the TMA schedule	WBT ILT refresher	C	Multiple choice
b. Given access to an	1) TMA Operational Capability	WBT	C	Multiple

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	<p>Overview</p> <p>a) Graphical User Interfaces (GUIs)</p> <p>b) Display System Replacement (DSR) data display</p> <p>i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft</p> <p>ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90</p> <p>c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA)</p>	ILT refresher		choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	d)Scheduling factors e)Scheduling constraints 2) Explain the efficiency gained by using TMA			
c. Given access to an operational TMA, discuss how TMA adapts based upon wind data with at least 70% accuracy.	1) A radar-based ETA is computed based on the aircraft's current position and velocity estimates given by the surveillance speed, altitude profile of the aircraft to the threshold, and the projected wind 2) Current wind velocity and direction, and temperature information is displayed by altitude and is read from a binary file generated by the Weather Data Processing Daemon (WDPD) every hour 3) WDPD gets the site-specific GRIB file from TMA Remote Weather System (CREWS), converts it to a binary format and broadcasts this file to configured weather Clients (that is PGUI and TGUI) (TMA Operator's Manual, Sec. 17.5)	WBT ILT refresher	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Development Notes:				
Review Comments:				

WBT Module 2: GUI Features

Lesson: TMA GUI Features	Topic GUI Features and Functionality	Time: 20 minutes
Training Outcome B: Upon completion of this lesson, you will be able to explain each of the Graphical User Interface (GUI) components of the TMA in an operational environment.		

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify a main component of the TMA in accordance with at least 70% accuracy.	1) TGUI 2) PGUI (TMA Operator's Manual, pp. 26 - 28)	WBT ILT refresher	C	Multiple choice
b. Given access to a TGUI environment, describe the TGUI features with at least 70% accuracy.	1) Features overview (TMA Operator's Manual, pp. 26 - 27)	WBT ILT refresher	C	Multiple choice
c. Given a review of the TMA GUI features, identify the features with at least 70% accuracy.	1) Application Window 2) Active Window 3) Dialog Box 4) Window Tiling 5) Minimizing a window 6) Optional Window Components/Menu Bar 7) Push Buttons 8) Check Buttons 9) Choice Buttons 10) Radio Buttons 11) Spin Buttons	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	12) Display Buttons 13) Slider Bar 14) Text Entry Fields			
d. Given access to an operational TMA, define the manual functionality terms with at least 70% accuracy.	1) Keyboard actions a) M key b) Shift M c) Control E d) Control Shift G e) Toggle F7 2) Mouse terminology a) Click b) Click, hold, drag c) Double-click d) Middle-click e) Right-click f) Shift-click g) Dwell	WBT ILT refresher	C	Matching Interaction
e. Given an operational TMA, explain the difference between Rescheduling and Broadcast with at least 70% accuracy.	1) Define: a) Rescheduling b) Broadcast 2) Example of the difference between Rescheduling and Broadcast 3) The difference is that reschedule does not always broadcast. There are two functionalities: one requires two steps, the second is a single option that	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>automatically broadcasts the reschedule</p> <p>4) Need to review changes prior to broadcast to ensure data is correct and anomalies are not created (delay)</p> <p>5) Triggers that reschedule and broadcast in the same function</p> <p>6) Manually scheduled aircraft will be intentionally left out of the reschedule and broadcast if not selected</p> <p>7) When to reschedule and when not to reschedule</p>			
Development Notes:				
Review Comments:				

Lesson: PGUI vs. TGUI	Topic: Difference Between GUI Components	Time: 15 minutes
Training Outcome C: Upon completion of this lesson, you will be able to access each of the GUI components of the TMA in an operational environment.		

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TGUI environment, access the TGUI components in accordance with the performance criteria checklist.	1) Timelines a) Access the component b) Explain its purpose 2) Graphs a) Access the component b) Explain its purpose 3) Symbols a) Access the component b) Explain its purpose 4) Alert notices a) Access the component b) Explain its purpose (TMA Operator's Manual, pp. 38 – 59)	WBT ILT refresher	P	Performance assessment Simulation
b. Given access to a PGUI environment, access the PGUI components in accordance with the performance criteria checklist.	1) Aircraft Symbols a) Access the component b) Explain its purpose 2) Datablocks a) Access the component b) Explain its purpose 3) Waypoint Symbols a) Access the component b) Explain its purpose	WBT ILT refresher	P	Performance assessment Simulation

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	4) PGUI Clock a)Access the component b)Explain its purpose 5) PGUI Scratch Pad/Message Area a)Access the component b)Explain its purpose 6) Range Rings a)Access the component b)Explain its purpose 7) Timelines a)Access the component b)Explain its purpose 8) Sequence List a)Access the component b)Explain its purpose 9) Pointer a)Access the component b)Explain its purpose 10) Function Keys a)Access the component b)Explain its purpose 11) Action Keys a)Access the component b)Explain its purpose 12) Default Files a)Access the component b)Explain its purpose			

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 63 - 72)			
Development Notes:				
Review Comments:				

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 15 minutes
Training Outcome D: Upon completion of this lesson, you will be able to explain the TGUI display tags and symbols on the TMA in an operational environment.		

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, discuss how the timeline is formatted with color with at least 70% accuracy.	1) Overview of TMA TGUI Display a) TGUI Display at Startup b) Timeline Overview c) Timeline Elements d) Meter Fix Arcs e) TMA Scheduler f) ETA Aircraft Tags g) STA Aircraft Tags and Freeze Horizons h) Timeline Sides i) On Schedule, Delay, and Advance j) Departure Timelines k) Timesharing l) Load Graphs and Forecast Traffic m) Load Graph Display n) Reading Load Graphs o) Reading Lines (TMA Operator's Manual, pp. 38 -	WBT ILT refresher	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>55)</p> <p>2) Arrival Timeline</p> <ul style="list-style-type: none"> a) Green tags = ETA b) Yellow tags = unfrozen STA c) Blue tags = frozen STA d) Light blue STA (adapted color) = Open Slot e) White tags = proposed MFX f) Green STA = scheduled departures not yet departed g) Red STA (adapted color) = Locally Departed flight h) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color) i) Plum tags = proposed STA of an internal departure <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p> <p>3) Departure Timeline</p> <ul style="list-style-type: none"> a) Green tags = proposed departure time b) Yellow tags = manually 			

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>scheduled time of departures</p> <p>c) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color)</p> <p>d) Plum tags = proposed STA of an internal departure</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>			
b. Given a TGUI, identify components of aircraft tag data on the list with at least 70% accuracy.	<p>1) Aircraft tag color</p> <p>a) Green</p> <p>b) Yellow</p> <p>c) Blue</p> <p>d) Blue (adaptable color)</p> <p>e) Light Blue (adaptable color)</p> <p>f) Orange (adaptable color)</p> <p>g) White</p> <p>h) Plum</p> <p>i) Red (adaptable color)</p> <p>j) Delay Notation (color-coded value)</p> <p>2) Destination airport symbol (FAST SME would do this. If TMA is only adapted for a single airport within a TRACON group, then the option to turn</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>the symbol on is unavailable)</p> <p>3) Size symbol</p> <p>a) Boeing 757</p> <p>b) Super Heavy</p> <p>c) Heavy</p> <p>d) Large</p> <p>e) Small</p> <p>(TMA Operator's Manual, pp. 40 - 43, Sec. 3.1.3)</p>			
c. Given a TGUI display, discuss how the scheduled time of arrival (STA) side of a timeline can be changed to ripple the list with at least 70% accuracy.	<p>1) Delay value (color change when building up traffic demand)</p> <p>2) Blocked Interval</p> <p>3) Add slots</p> <p>4) Matrix setting (separate these out)</p> <p>5) AMDT</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
d. Given a TGUI display, discuss how the STA side of a timeline can be configured with at least 70% accuracy.	<p>1) Font size</p> <p>2) Freeze Horizon</p> <p>3) Length (15 to 90 minutes)</p> <p>4) Reference (runway threshold, departure airport, arcs, etc.)</p> <p>5) Timeline/Gap offset (optional)</p> <p>(TMA Operator's Manual, p. 40, Table 3-1)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
e. Given an operational TMA, explain what a non-controlling TGUI is with at least 70% accuracy.	<ol style="list-style-type: none"> 1) A TGUI that has been configured as a controlling TGUI on the M&C can have its capabilities limited through adaptation, resulting in a partially controlling TGUI. A partially controlling TGUI is primarily used by adjacent facilities to schedule departures. This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS 2) Similarities with TGUI <ol style="list-style-type: none"> a) Look b) Control of display features c) Status and Schedule Window 3) Differences <ol style="list-style-type: none"> a) No control of traffic or airspace b) No ability to change operative features controlling traffic c) No aircraft scheduling features d) No Apply button functionality <p>(TMA Operator's Manual, p. 61, Sec. 3.3)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
f. Given an operational TMA, explain what a partially controlling TGUI is with at least 70% accuracy.	1) Used by adjacent facilities to schedule departures 2) Can be configured to: a) Allow users to swap STAs b) Manually schedule active aircraft that have been adapted for control c) Allow user to switch aircraft between meter/fix arcs that a site has control over 3) User cannot modify settings 4) No Apply button functionality (TMA Operator's Manual, p. 61, Sec. 3.4)	WBT ILT refresher	C	Multiple choice
g. Given an operational TMA, identify the reference point for the timeline with at least 70% accuracy.	1) TGUI a) Timeline Controls b) Timeline Pop-Up Menu	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 4: PGUI Displays

Lesson: PGUI Display	Topic: PGUI Display Options	Time: 20 minutes
Training Outcome E: Upon completion of this lesson, you will be able to identify the PGUI display map and features on the TMA in an operational environment.		

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify a map feature on an operational TMA with at least 70% accuracy.	1) Full Center airspace radar map (default map) 2) Features a) Aircraft symbols b) Aircraft identifiers c) Datablocks d) Waypoint Symbols e) PGUI Clock f) PGUI Scratch Pad/Message Area g) Range Rings h) Timelines i) Sequence List j) Pointer k) Function Keys l) Default Files	WBT ILT refresher	C	Multiple choice
b. Given a PGUI display, identify the Map Options panel on an operational TMA with at least 70% accuracy.	1) Full Center airspace radar map (default map) 2) F3 Key	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a PGUI display, describe a Datablock with at least 70% accuracy.	1) Datablock associated with a sample aircraft 2) Three lines of data a) Aircraft ID with size designation b) Assigned runway, Assigned altitude, and/or actual altitude c) Ground speed and HOST sector ID	WBT ILT refresher	C	Multiple choice
d. Given a PGUI display, identify the General Setup Options with at least 70% accuracy.	1) Keyboard 2) F2 key	WBT ILT refresher	C	Multiple choice
e. Given a PGUI display, explain range rings with at least 70% accuracy.	1) Definition: help determine aircraft distances from particular points 2) Map Options panel configuration options a) Radii b) Number of rings c) Range ring boxes	WBT ILT refresher	C	Multiple choice
f. Given a PGUI display, identify the Front key with at least 70% accuracy.	1) Rather than viewing both the TGUI and the PGUI on the same monitor by sizing and moving the displays to occupy different halves of the screen, it is possible to bring up both displays on the same monitor,	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>with each filling out the entire screen, but with one display being in front of the other. The back or hidden display can be brought to the front and made visible by toggling the Front key</p> <p>2) Keyboard</p> <p>3) Can access either the PGUI or the TGUI</p>			
Development Notes:				
Review Comments:				

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 45 minutes
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a runway maintenance issue, identify the method to schedule a blocked interval with at least 70% accuracy.	1) Scenario for needed runway maintenance: snowfall requires the need to block a runway for one hour 2) Concept of blocking a runway for a specified time 3) Steps required to insert a blocked interval a) MFX blocked interval b) THD blocked interval 4) Modifying and removing blocked intervals (TMA Operator's Manual, pp. 168 - 175)	WBT ILT refresher	C	Multiple choice
b. Given the F1 Panel, identify the Separation Matrix with at least 70% accuracy.	1) Configuration and Runway Settings dialog box 2) Set Defaults a) The Separation Matrix	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>determines the minimum spacing between two types of aircraft approaching a runway threshold</p> <p>b) The Separation Matrix is a square matrix with rows (Ahead) and columns (Behind)</p>			
c. Given an expanded Status and Schedule window, explain when to specify which airport's aircraft to reschedule with at least 70% accuracy.	<p>1) Satellite airport configurations - when change the configuration at the main airport, it changes the configurations at the satellite airport</p> <p>2) The default setting is set to Off</p> <p>3) Affects the departure scheduling</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
d. Given an expanded Status and Schedule window, identify the Control functions option with at least 70% accuracy.	<p>1) Control button functions are located in the upper left area of the window</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
e. Given an expanded Status and Schedule window, identify the Display function button with at least 70%	<p>1) Status and Schedule Window</p> <p>2) Display function button is located in the upper left corner of the window</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.				
f. Given an operational TMA, identify the F4 panel with at least 70% accuracy.	1) F4 Key 2) Internal Departures Window	WBT ILT refresher	C	Multiple choice
g. Given an expanded Status and Schedule window, identify the Configuration and Runway Settings option with at least 70% accuracy.	1) Status and Schedule Window 2) Configuration and Runway Settings option is a button on the right side of the window	WBT ILT refresher	C	Multiple choice
h. Given a line of arrivals, identify how a call for release within the freeze horizon populates the TMA schedule with at least 70% accuracy.	1) Because the aircraft is within the freeze horizon, high probability of a delay 2) Can freeze at an identified time so more delays are not caused 3) Take majority of the delay on the ground instead of the air because it's easier to hold them on the ground than to put them in a holding pattern in the air	WBT ILT refresher	C	Multiple choice
i. Given an operational TMA, identify actions for which a Broadcast is required with at least 70% accuracy.	1) Internal departures 2) When TMA is updated, delays on TGUIs will be updated which are different than the delays on controller scopes	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) Need to Broadcast the update so that the revised TMA times are displayed on controller scopes			
j. Given a line of arrivals, explain how to use the F4 panel to schedule internal departures with at least 70% accuracy.	1) F4 Key 2) Example is that the aircraft might not be to the freeze horizon yet	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments: NEED SME TECHNICAL INPUT: TLO requires subject matter guidance. (FAA)				

Lesson: Use of the Status and Schedule Window	Topic: Status and Schedule Window Scheduling parameters	Time: 10 minutes
Training Outcome G: Upon completion of this lesson, you will be able to discuss the HOST/ En Route Automation Modernization (ERAM)/ARTS connection on a TMA in an operational environment.		

TLO 9: Given an operational TMA, you will be able to discuss the HOST/ERAM/ARTS connection with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the HOST/ERAM/ARTS connection with at least 70% accuracy.	1) A button in the upper part of the Status and Schedule window 2) The HOST/ERAM-Interface controls the connection to the HOST computer or ERAM 3) TMA is always receiving data from the HOST or ERAM 4) F8 panel shows which connections are activated or inactive (TMA Operator's Manual, p. 129, Sec. 7.1.2)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification	Topic: Aircraft Scheduling Data	Time: 30 minutes
Training Outcome H: Upon completion of this lesson, you will be able to explain aircraft scheduling data on a TMA in an operational environment.		

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the impact of assigning runways with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Runway after aircraft proceeds over various fixes 2) Reasons why you might change the default runways for an aircraft: <ol style="list-style-type: none"> a) Runway congestion b) Weather c) Suspended aircraft 	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
b. Given an operational TMA, explain the impact of allocating runways with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Numbers may be impacted 2) TMA automatically adjusts runways based on manual data inputs; TMA may adjust numbers 	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
c. Given an operational TMA, identify the Schedule Aircraft pop-up menu with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Pointer on the aircraft tag 2) Order of pop-up menu options can be controlled by adaptation 3) Sub-menu options for an aircraft are enabled or disabled in adaptation 	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, Sec. 8.2, p. 216)			
d. Given a Schedule Aircraft pop-up menu, identify the reschedule commands with at least 70% accuracy.	1) Identify how the reschedule commands can be accessed 2) Commands include a) All aircraft b) All and Broadcast to reschedule and update c) ACID and After to reschedule on the STA timeline d) ACID only to reschedule only the aircraft or blocked slot e) All except manually scheduled for STAs that will be locked f) All except manually scheduled and Broadcast for STAs that will be locked g) ACID and After except manually scheduled for STAs that will be locked (TMA Operator's Manual, pp. 216 - 217, 219, Secs. 8.2 and 8.2.1)	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
e. Given a Schedule Aircraft pop-up menu, identify the Broadcast commands with at least 70% accuracy.	1) Identify how the broadcast commands can be accessed 2) Commands include a) All aircraft b) All and Broadcast to reschedule and update (TMA Operator's Manual, pp. 216 - 217, 220, Secs. 8.2 and 8.2.2)	WBT ILT refresher	C	Multiple choice
f. Given a Status and Schedule window, identify aircraft data for a pre-identified flight with at least 70% accuracy.	1) Steps to access aircraft data 2) Identify aircraft data (TMA Operator's Manual, pp. 247 - 251, Sec. 8.6)	WBT ILT refresher	C	Multiple choice
g. Given a Status and Schedule window, identify the proposed departure flights within a Center/TRACON controlled airport with at least 70% accuracy.	1) Steps to display the window 2) Identify the departing aircraft	WBT ILT refresher	C	Multiple choice
h. Given a TGUI, describe what working with blocked time slots means with at least 70% accuracy.	1) A place is held in the schedule for a single aircraft, whether unscheduled or currently outside the system 2) Represent the aircraft's ETA 3) Other aircraft will be	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>scheduled around the slot depending on the aircraft and slot characteristics</p> <p>(TMA Operator's Manual, p. 263, Sec. 8.9)</p>			
Development Notes:				
Review Comments:				

WBT Module 7: Additional Features

Lesson: TGUI Features	Topic: TGUI Features	Time: 30 minutes
Training Outcome I: Upon completion of this lesson, you will be able to describe TGUI features on a TMA in an operational environment.		

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, list the Help functions with at least 70% accuracy.	1) Help key 2) A secondary dialog, Help Index and Search, is also available from the main dialog, On-Line Help (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
b. Given a TGUI display, identify the Quick Key commands with at least 70% accuracy.	1) Accessed via the Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key a) C b) F c) R d) T e) U f) X g) Z (TMA Operator's Manual, p.	WBT ILT refresher	C	Multiple choice

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	266, Sec. 9.1)			
c. Given a TGUI display, identify the Broadcast Status Indicator option with at least 70% accuracy.	1) Control + D	WBT ILT refresher	C	Multiple choice
d. Given a TGUI display, identify the Weather Input Options and System Parameters option with at least 70% accuracy.	1) Control W 2) The Weather Input and System Parameters dialog box appears (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
e. Given extreme weather conditions, explain when it is appropriate to use Miles in Trail for spacing rather than TMA with at least 70% accuracy.	1) It is not appropriate to use TMA when CPC's would be unable to perform TBFM due to deviations	WBT ILT refresher	C	Multiple choice
f. Given a complete arrival and departure list in TMA, describe the effects of changing weather conditions in accordance with at least 70% accuracy.	1) Impacts runways 2) Arrival fixes 3) Airspace impacts 4) Change in arrival rate 5) Departure airports may be impacted	WBT ILT refresher	C	Multiple choice
g. Given a need to reduce traffic complexity, describe when it is appropriate to add	1) Definition of a blocked slot 2) Block slots can be added for maintenance flights, emergencies, or other related	WBT ILT refresher	C	Multiple choice

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
blocked slots with at least 70% accuracy.	reasons to minimize impact to the NAS 3) Steps to add a blocked slot			
h. Given a need for additional tools, describe what tools work well with TMA with at least 70% accuracy.	1) FSM (including monitoring alerts, weather displays, etc.) 2) FEA (Flow Evaluation Area) 3) Facility meteorologist 4) CIWS (weather) 5) COSPA (weather) 6) ITWS (weather) 7) RAPT (weather)	WBT ILT refresher	C	Multiple choice
i. Given an operational TMA, identify when it is turned off with at least 70% accuracy.	1) KVDT TMA/AT workstation command 2) CP or EP TMAD On/Off setting	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 9: Setup Options

Lesson: PGUI Display Capabilities	Topic: PGUI Display	Time: 20 minutes
Training Outcome J: Upon completion of this lesson, you will be able to describe PGUI display capabilities on a TMA in an operational environment.		

TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain how to access the General Setup Options panel with at least 70% accuracy.	1) F2 key 2) General Setup Options panel (TMA Operator's Manual, p. 283, Sec. 11.1.1)	WBT ILT refresher	C	Multiple choice
b. Given an operational TMA, describe the Data Tag Features sub-panel with at least 70% accuracy.	1) Has drag capability 2) Aircraft can be filtered by arrival airport 3) Aircraft can be filtered by display point (TMA Operator's Manual, p. 286, Sec. 11.2)	WBT ILT refresher	C	Multiple choice
c. Given a Data Tag Features sub-panel, describe PGUI features with at least 70% accuracy.	1) F2 key 2) General Setup Options panel 3) Data Tag Features is in the upper left corner of the panel (TMA Operator's Manual, p. 283, Sec. 11.1.1)	WBT ILT refresher	C	Multiple choice

TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
d. Given a General Setup Options panel, describe the Map Display Features sub-panel with at least 70% accuracy.	1) F2 key 2) General Setup Options panel 3) Map Display Features is in the upper right corner of the panel (TMA Operator's Manual, p. 283, Sec. 11.1.1)	WBT ILT refresher	C	Multiple choice
e. Given Visual Flight Rules (VFR) or Instrument Flight Rules (IFR), discuss the difference between their configuration settings with at least 70% accuracy.	1) In calculating ETAs, TMA analyzes the possible routes and trajectories that an aircraft is likely to take based on factors such as assigned meter fix, destination airport, airport configuration, engine type and approach segment, and the aircraft's current position, altitude, heading, and speed 2) Configuration Options - IFR (or ILS) and VFR are two different types of approaches, and are part of the required airport configuration settings for accurate calculations 3) Typically, when an airport configuration is VFR, the acceptance rate will be higher	WBT ILT refresher	C	Multiple choice

TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, Sec. 1.3, Figures 7-14, 7-15, 7-16)			
Development Notes: VFR adaptation for TMA, computes time for final approach fix, which can vary depending upon how TMA is set up. (VFR will "hyper-feed" an airport more than an IFR.)				
Review Comments:				

ILT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 1 hour
Training Outcome K: Upon completion of this lesson, you will be able to manipulate the TGUI display colored tags and symbols on the TMA in an operational environment.		

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TMA, identify the need to set up a non-controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.3)	ILT	C	Multiple choice
b. Given access to a TMA, identify the need to set up a partially controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.34)	ILT	C	Multiple choice
c. Given a TGUI, use pointer and interactive keys/elements to obtain Air Traffic Control (ATC) operations information in accordance with the performance criteria	1) Interacting with the TGUI a) Using the Pointer b) Function Keys c) TGUI Quick Action Keys d) TGUI Hot Keys 2) Non-controlling TGUI 3) Partially Controlling TGUI	ILT SBL	P	Performance assessment

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
checklist.				
Development Notes:				
Review Comments:				

ILT Module 4: PGUI Displays

Lesson: Timeline Setup Window Manipulation	Topic: Timeline Setup Window	Time: 3 hours
Training Outcome L: Upon completion of this lesson, you will be able to manipulate the features of the PGUI to control the graphical representation of data on the TMA in an operational environment.		

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the Researcher Control panel to change content of a Datablock in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Press the F11 key to open the Researcher Control panel 2) Select the Datablock Options Panel 3) Manipulate Datablock data options and display configuration 	ILT SBL	P	Performance assessment
b. Given a PGUI display, use the Map Options panel to identify the aircraft symbols in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Press the F3 key to open the Map Options panel 2) The four symbols are: <ol style="list-style-type: none"> a) Diamond: aircraft following its filed route b) Triangle: aircraft not following its filed route c) Pound sign: HOST radar is coasting the aircraft d) At sign: No radar tracks received by TMA for several radar sweeps 	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a PGUI display, use the Map Options panel to show TMA-defined waypoint names as a group in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Choose TMA waypoint display option Group	ILT SBL	P	Performance assessment
d. Given a PGUI display, use the General Setup Options to show the current universal time in accordance with the performance criteria checklist.	1) Press the F2 key to open the General Setup Options panel 2) Choose PGUI clock display option	ILT SBL	P	Performance assessment
e. Given a PGUI display, use the General Setup Options to show the scratch pad/message area in accordance with the performance criteria checklist.	1) Press the F2 key to open the General Setup Options panel 2) Choose scratch pad display option a) Left scratch pad box: used in TRACON for runway assignment b) Right scratch pad box: used only in development simulations for sector handoff data entry c) Option may not be available at all TRACONs	ILT SBL	P	Performance assessment
f. Given a PGUI display,	1) Press the F3 key to open the	ILT	P	Performance

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
use the Map Options to manipulate the range rings by entering values in the boxes in accordance with the performance criteria checklist.	Map Options panel 2) Enter values in the range ring boxes a) Radii value b) Number of rings	SBL		nce assessment
g. Given a PGUI display, change the timeline from the left side to the right side in accordance with the performance criteria checklist.	1) Toggle the backslash key on the key pad (with Num Lock off) 2) Shift the timeline between the left and right sides of the display	ILT SBL	P	Performance assessment
h. Given a PGUI display, show the Sequence List display in accordance with the performance criteria checklist.	1) Open a PGUI display 2) A text-based Sequence List appears	ILT SBL	P	Performance assessment
i. Given a PGUI display, use the functions to interact with the display as directed to obtain information for ATC operations in accordance with the performance criteria checklist.	1) Open the Sequence List 2) Click on the Call Sign, drops to Analysis (three sub-options) a) Show Route Analysis Route b) Show Flight Plan Route c) Show HOST AK Route (current flight plan route that TMA has from HOST)	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
j. Given a monitor with a TGUI display and a monitor with a PGUI display, select the option to view both TGUI and PGUI displays on one monitor, in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Resize the GUIs using the pointer to view both GUI displays on one monitor 2) This is a function available to controllers that is not used everywhere 3) Window Focus tool is used similar to Front Key <ol style="list-style-type: none"> a) Developed by second level support b) Available to all, based upon Tech Ops knowledge c) This option must be adapted by the facility ATSS 	ILT SBL	P	Performance assessment
k. Given one monitor with both a TGUI and a PGUI display, use the pointer to resize a GUI display in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Open a PGUI and TGUI on one monitor 2) Using the mouse, move the pointer to dwell on a PGUI display corner 3) Resize the display 	ILT SBL	P	Performance assessment
l. Given one monitor with both a TGUI and a PGUI display, use the Front key to toggle the TGUI and PGUI displays on the monitor in accordance	<ol style="list-style-type: none"> 1) Open a PGUI and TGUI on one monitor 2) Use the Front Key to toggle the displays 	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
with the performance criteria checklist.				
m. Given a PGUI display, use the Map Options panel to customize map views in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Choose the map customization view	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 4 hours
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the acceptance rate using the graph with at least 70% accuracy.	1) TRACON acceptance rate graph (created by TMC) 2) Generally, time is on the X-axis and the acceptance rate is on the Y-axis	ILT Small group discussion	C	Multiple choice
b. Given access to an operational TMA, explain what the TRACON acceptance rate can be used for with at least 70% accuracy.	1) TRACON acceptance rate is the maximum number of aircraft per hour that the TRACON will accept under the present conditions 2) Can be used to revise the rate per hour 3) Currently, this is not used regularly in the field, if at all. It is set to Unrestricted Rate (UR)	ILT Small group discussion	C	Multiple choice
c. Given an adapted TMA, identify whether the set up was correct or	1) Default graphs are set up a) One default is the TRACON acceptance rate	ILT Small group	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
incorrect after reviewing the graph with at least 70% accuracy.	<p>graph (demand graph with the number of aircraft at any time)</p> <p>b) Second default is the average delay graph</p> <p>2) Default graph can be compared to the TGUI timeline to determine if it was set up correctly</p> <p>3) Excessive demand may require another tool to support TMA (may have to use ground delay program, ground stop or something else) as the system is not always a standalone tool</p> <p>4) A scan technique can be used in order to use FSM, which can tell a TMC when to stop metering</p>	discussion		
d. Given a sample airport demand on TMA, identify the average delay graphs for metering in accordance with at least 70% accuracy.	1) Average delay graph display	ILT	C	Multiple choice
e. Given access to an operational TMA, describe what a blocked	1) Blocked interval indicates Meter Fixes or Runways affected	ILT Small group	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
interval is with at least 70% accuracy.	2) Shows interval start and end times on a timeline 3) Referred to as MFX (Meter Fix) and THD (Runway Threshold)	discussion		
f. Given access to an operational TMA, explain what buffers are with at least 70% accuracy.	1) Types of buffers: a) TRACON b) Time c) Matrix d) Departure	ILT Small group discussion	C	Multiple choice
g. Given access to an operational TMA, explain what RMD is with at least 70% accuracy.	1) Route Maximum Delay: maximum amount of delay that can be absorbed in the TRACON airspace for a given route a) Meter fix to Runway - VFR (RMD is 3 minutes) b) Meter fix to Runway - IFR (RMD is 1 minute) c) RMD is hardcoded in adaptation d) TRACON buffer is usually set high 2) The TMA system reviews both RMD and TRACON buffer to calculate the amount of delay to the TRACON and will choose the lower of the two values	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) RMD affects the amount of delay assigned to the TRACON (that it can absorb)			
h. Given an operational TMA, explain how the buffers and RMD affect scheduling with at least 70% accuracy.	1) Effect TMA scheduling and delay assignments 2) The amount of delay that the TRACON absorbs is the lesser of the buffer and RMD values 3) "Don't set it and forget it"	ILT Small group discussion	C	Multiple choice
i. Given access to an operational TMA, explain when it is appropriate to suspend an aircraft going into the TRACON airspace with at least 70% accuracy.	1) If the timelines are full and there is no place on a runway for an aircraft 2) Examples: a) If an emergency aircraft requests access for a landing and consequently needs to put on the list, then it'll ripple the list. Instead, the TMC in the center can call the TRACON TMC and request that the emergency aircraft be suspended outside of TMA b) Aircraft takes off without permission (IFR pop-up), the runway is full and if the controller puts the	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	aircraft on the list, then it'll ripple the list so the TMC can call and request suspension or ask the aircraft to go into a holding pattern			
j. Given access to an operational TMA, identify when it is appropriate to suspend an aircraft with at least 70% accuracy.	1) Controller identifies a problem and contacts a supervisor 2) Supervisor calls TMC 3) Number is unmanageable (most likely) or an emergency (less likely) 4) It is appropriate to add an aircraft when: a) Emergency aircraft is in the air, TMC controller calls TMC TRACON and requests suspension, which is granted b) TMC TRACON realizes that it is not possible, calls TMC controller back and tells him to put the aircraft back on the list; now it is appropriate to add the aircraft back to the list	ILT Small group discussion	C	Multiple choice
k. Given access to an	1) When an aircraft is	ILT	C	Multiple

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
operational TMA, explain what the consequences of suspending an aircraft are with at least 70% accuracy.	<p>suspended, it does not have a spot on the runway or at the meter fix</p> <p>2) Normally at the meter fix, the aircraft has to be traveling at a given altitude and a given speed</p> <p>3) If the meter fix is full, then need to coordinate a different altitude at the meter fix or coordinate a new route</p> <p>4) The consequence of suspending an aircraft is the need for that coordination</p>	Small group discussion		choice
Development Notes:				
Review Comments: NEED SME TECHNICAL INPUT: ELO 1 needs subject matter guidance. (FAA)				

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given airport capacity information, describe conditions under which TMA might be initiated TMA with at least 70% accuracy.	<p>1) When an airport gets too close to capacity, then it is time to start using TMA</p> <p>2) Airport capacity is the runway acceptance rate</p> <p>3) Some centers will run TMA at 60% capacity, others at 70%</p>	<p>ILT</p> <p>Small group discussion</p>	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>or 90%</p> <p>4) Also depends on how the aircraft are spread out and where delays are - Will turn TMA On or Off based upon the average delays which are determined using graphs</p>			
b. Given an operational TMA, identify the fleet mix with at least 70% accuracy.	<p>1) TGUI timeline</p> <p>2) Types of aircraft by their symbols:</p> <p>a) Boeing 757</p> <p>b) Super Heavy</p> <p>c) Heavy</p> <p>d) Large</p> <p>e) Small</p>	<p>ILT</p> <p>Small group discussion</p>	C	Multiple choice
c. Given an operational TMA, identify various stream classes with at least 70% accuracy.	<p>1) Stream class is the sequencing of similar aircraft into a traffic flow</p> <p>2) Types</p> <p>a) Future</p> <p>b) EDC</p> <p>c) TBFM</p> <p>(TMA Operator's Manual, p. 45, Sec. 3.1.6)</p>	<p>ILT</p> <p>Small group discussion</p>	C	Multiple choice
d. Given the EDC tool, explain what a traffic flow is with at least 70% accuracy.	<p>1) Traffic flow describes the aircraft that are departing from or bound for an airport</p> <p>2) EDC manages en route traffic</p>	<p>ILT</p> <p>Small group discussion</p>	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary (TMA Operator's Manual, p. 388, Sec. C.1)			
e. Given a low average TBFM delay assigned by TMA, identify when it is appropriate to terminate TBFM with at least 70% accuracy.	1) When to terminate TBFM differs from center to center a) Some facilities use TMA all day (never turn it off) b) Other facilities have policy to use it only when it's necessary (the TMC's decision)	ILT Small group discussion	C	Multiple choice
f. Given an operational TMA, identify discrepancies in the list with at least 70% accuracy.	1) Delay times display 2) If the majority of aircraft have 2 or 3 minute delays and one has a 15-minute delay, the 15-minute delay may be a discrepancy 3) Discrepancies are not necessarily bad or unintentional; for example, a reason for the 15-minute delay may be that the aircraft is working as a designed. ACFT may have been	ILT Small group discussion	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>released without CFR internally and/or the ACFT departed at the wrong coordinated (reserved) time; VFR to IFR pop up could result in a comparatively extended delay for the better “good” of the system users</p> <p>4) Note that if times on the TGUI timelines are not the same as what’s on the controller scopes, then you’ll receive a Broadcast Required message</p>			
g. Given TBFM, describe at least two conditions under which TBFM should be stopped and TMA turned off with at least 70% accuracy.	<p>1) No airplanes</p> <p>2) Low demand</p> <p>3) Low average delay</p>	<p>ILT</p> <p>Small group discussion</p>	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the end of a TBFM	1) Description of Traffic	ILT	C	Multiple

TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
session, explain when it is unnecessary to meter with at least 70% accuracy.	Management Initiatives (TMIs) and its list 2) When a meter session ends, need to associate different tools 3) When metering would be initiated or discontinued, recognize when to use ground stop 4) When ending a metering session using TMA, need to know when to start the TMI initiative 5) Don't meter when don't have to do so			choice
Development Notes:				
Review Comments:				

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an adapted TMA, explain what the Meter Fix Speed is with at least 70% accuracy.	1) It is a pre-adapted value 2) Aircraft has to cross the meter fix at a given altitude and a given speed (pre-adapted in local facility adaptation)	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) TMA uses this value to set scheduling and ETAs 4) Adapted speeds need to be communicated to all affected TMC and ATCS users of the system			
b. Given an operational TMA, identify when it is appropriate to move outer arcs with at least 70% accuracy.	1) Outer meter arcs display on a PGUI 2) Outer meter arcs are set to On or Off 3) Setting rarely changes because whatever is in use has already been determined to be most efficient 4) Example of when it would be appropriate to move outer meter arcs is if the airspace changes, deviation scenario – when have an arc issue, can talk to adaption specialist, TMA and FAST – need to be able to talk with a FAST SME	ILT	C	Multiple choice
c. Given an adapted TMA, identify the meter reference points (MRP) or meter fixes (MFX) and associated center sectors with at least 70% accuracy.	1) MRP – meter fix at TRACON boundary, outer fix (outer arcs), outer outer arc (outer 2 arc), outer outer outer arc (outer 3 arc) a) A lot of facilities use outer arcs to set sector	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>boundary delays</p> <p>b) TRACON buffer can be manipulated and leg lengths can be adapted (minutes and seconds)</p> <p>i) Example: TRACON gets first 3 minutes of delay</p> <p>c) Centers get all the rest of the delay</p> <p>2) Meter Fix Arc (Outer Meter Fix Arc): A predetermined arc, usually set at the same distance from Meter Fix as the Outer Fix, for which crossing times are calculated, when an aircraft will not travel over an outer fix</p> <p>3) Metering fix: A fix along an established route where aircraft metering begins in anticipation of the aircraft entering terminal airspace. Normally, this fix is established 10,000 feet above airport elevation at a distance from the airport that will facilitate a profile descent to that airport</p> <p>4) Cadre needs to know the</p>			

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	meter fixes (all the outer arcs) 5) CPCs only need to know MFXs applicable to their area of control			
d. Given an adapted TMA and Display System Replacement (DSR) console, identify whether the Keyboard Video Display Terminal (KVDT) or air traffic workstation TMA command is set to On or Off with at least 70% accuracy.	1) KVDT TMA/AT workstation command 2) CP or EP TMAD On/Off setting	ILT	C	Multiple choice
e. Given an operational TMA, explain conditions under which adjacent center metering might be initiated with at least 70% accuracy.	1) If Sectors 1 - 3 are in ARTCC A and Sector 4 is in ARTCC B, then it will be necessary to perform adjacent center metering 2) If all 4 sectors are in one air traffic control center (ATCC), then adjacent center metering is not needed 3) ACM is a pre-adapted value	ILT	C	Short answer
Development Notes:				
Review Comments:				

Lesson: Aircraft Swap	Topic: STA Swap and Continuous Monitoring	Time: 4 hours
Training Outcome N: Upon completion of this lesson, you will be able to perform the steps to swap aircraft on a TMA in an operational environment.		

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, perform the steps required to swap the scheduled times of arrival of two inbound aircraft in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Review the reasons to swap two aircraft 2) Identify the Separation buffer, Time buffer, and RMD <ol style="list-style-type: none"> a) RMD is hardcoded and a TMC cannot change it b) Open the F1 panel to view the Separation buffer and the Time buffer c) Ask the System Administrator to view the RMD 3) Discuss the importance of continuous monitoring 4) Identify when it is appropriate to swap their scheduled times of arrival of aircraft <ol style="list-style-type: none"> a) Enabled in adaptation b) Can swap STAs for active aircraft in control of <p>(TMA Operator's Manual, p. 239, Sec. 8.2.15)</p>	ILT SBL	P	Performance assessment

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	5) Show the Schedule Aircraft pop-up menu 6) Bring the cursor to the Swap line 7) Right click and hold the mouse button or left click on Swap to highlight a flight 8) Right click on the aircraft to swap with and open the Schedule Aircraft pop-up menu 9) Right click and hold the mouse button or left click on Swap with 10) The aircrafts are switched if the two flights are in the same superstream class (TMA Operator's Manual, pp. 236 - 238, Sec. 8.2.15)			
b. Given an operational TMA, perform the steps required to resequence the scheduled times of arrival three or more aircraft in accordance with the performance criteria checklist.	1) Explain terminology difference between swap and resequence 2) Drag-and-drop on a timeline - left click on an aircraft tag 3) Drag the cursor to the first flight with which to swap 4) The aircraft's tag is	ILT SBL	P	Performance assessment

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>highlighted and the aircraft ID is shown in white text at the cursor position to indicate that a resequencing is taking place</p> <p>5) As the cursor passes over other aircraft, tags are highlighted to indicate which flight will be resequenced when there are multiple tags in close proximity</p> <p>6) Release the mouse on the aircraft identified for the resequencing</p> <p>7) A confirmation dialog will be displayed, if enabled in adaptation and the flights are in the same superstream</p> <p>8) Repeat steps 1 – 6 for the third aircraft identified for the resequencing</p> <p>(TMA Operator's Manual, p. 239, Sec. 8.2.15)</p>			
Development Notes:				
Review Comments:				

Lesson: Use of the Status and Schedule Window	Topic: Status and Schedule Window Scheduling parameters	Time: 7 hours
Training Outcome O: Upon completion of this lesson, you will be able to use the Status and Schedule window to configure scheduling parameters on a TMA in an operational environment.		

TLO 20: Given a Status and Schedule window, you will be able to configure the HOST/ERAM connection on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, establish the HOST/En Route Automation Modernization (ERAM) connection in accordance with the performance criteria checklist.	1) Open the Status and Schedule window 2) Choose an airport from the list next to the View Parameters for label 3) Status of the HOST connection is indicated by the message One Way HOST/ERAM connection or Two-Way HOST/ERAM connection (TMA Operator's Manual, pp. 129 - 130, Sec. 7.1.2)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and	1) Click on the triangle symbol	ILT	P	Performance

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Schedule window, select the Current Terminal Radar Approach Control Facility (TRACON) Parameters Section for expansion in accordance with the performance criteria checklist.	<p>next to Current TRACON Parameters</p> <p>2) The Current TRACON Parameters section will expand</p> <p>(TMA Operator's Manual, p. 149)</p>	SBL		nce assessment
b. Given an expanded Status and Schedule window, perform the steps to set the future TRACON parameters in accordance with the performance criteria checklist.	<p>1) Select the TAR1 button to open the Future TRACON Acceptance Rate Data dialog box</p> <p>2) Use the arrows to modify the TRACON Acceptance Rate</p> <p>3) Specify the time at which the change will take place using the arrows next to the Specify UTC Activation Time box</p> <p>4) Select the Include manually scheduled aircraft check button</p> <p>5) Click on the Apply button</p> <p>(TMA Operator's Manual, p. 185, Sec. 7.7.1)</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment
c. Given access to an operational TMA, construct the TRACON acceptance rate graph in	<p>1) Can be used as a tool to display the TRACON acceptance</p> <p>2) Could tell you when you do or</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accordance with the performance criteria checklist.	<p>do not need to meter</p> <p>3) Excessive demand may require another tool to support TMA (may have to use ground delay program, ground stop or something else) as the system is not always a standalone tool</p> <p>4) Can use a scan technique to use FSM, which can tell a TMC when to stop metering</p> <p>5) Demonstrate how to construct the TRACON acceptance rate graph</p>			
Development Notes:				
Review Comments:				

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, select the Current Gate and Meter Fix (MFX) Parameters Section for expansion in accordance with the performance	<p>1) Click on the triangle symbol next to Current Gate and MFX Parameters</p> <p>2) The Current Gate and MFX Parameters section will expand</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
criteria checklist.	(TMA Operator's Manual, p. 152)			
b. Given a Status and Schedule window, select the Gate and MFX parameters in accordance with the performance criteria checklist.	1) Introduce a scenario which requires a change to Gate and MFX parameters 2) Select the appropriate options for each field within the parameters (TMA Operator's Manual, pp. 152 - 167)	ILT SBL	P	Performance assessment
c. Given an expanded Status and Schedule window, perform the steps to set the future Gate and Meter Fix parameters in accordance with the performance criteria checklist.	1) Select Rate 1 to open the Future Gate and MFX Acceptance Rate dialog box 2) Specify the time at which the change will take place in the Specify UTC Activation Time box using the up and down arrows next to the box 3) Select the Include manually scheduled aircraft check button located below the UTC Activation Time box to have aircraft rescheduled when the new limits are applied 4) Click on Apply to make the changes or Close 5) Select Streams1 from the expanded Status and	ILT SBL	P	Performance assessment

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>Schedule window to open the Future Stream Class dialog box</p> <p>6) Enter the values individually for each super stream in each Gate</p> <p>a) Or set values for super streams using shortcut text that describes the super streams to be modified</p> <p>b) Or accept the default values by clicking on the Set Defaults button</p> <p>7) If multiple arrival airports exist, toggle buttons will be shown to specify which airports' stream class should be set</p> <p>8) Specify the time at which the change will take place with the addition of Activation Time</p> <p>9) Stream Class Miles-in-Trail (MiT) restrictions are set for individual super streams. A super stream represents flows of aircraft that are scheduled together as a</p>			

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>single stream, and is defined as a combination of stream classes. Stream classes define which aircraft are always grouped together based on different criteria (e.g., meter fix, arrival airport, and engine type) and are defined in adaptation. Super streams are defined in adaptation and can also be created dynamically by the user. The dialog provides multiple mapping sets, each one providing different combinations of stream classes into super streams. By applying a specific mapping set, the user can cause different flows of aircraft to be scheduled together</p> <p>(TMA Operator's Manual, pp. 154 – 156, 188, Secs. 7.4.2 and 7.8.2)</p>			
Development Notes:				
Review Comments:				

TLO 23: Given an operational TMA, you will be able to demonstrate techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, identify techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Options the controller has to make 2) Controller sees the list and number on the scope and determines the appropriate action to take to meet criteria 3) These are only suggested ways to handle delay but there may be other mitigating factors <ol style="list-style-type: none"> a) Speed (1 - 3 minutes) b) Speed and Vectors (4 - 6), Spin (6+) 	ILT	C	Multiple choice
b. Given an operational position and a meter list, administer control instructions to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Monitor and comply with crossing times provided by adjacent center metering (ACM)/traffic management advisor (TMA) 2) Demonstrate techniques to meet times 	ILT	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, use the Control function options to choose Quickset in accordance with the performance criteria checklist.	1) Press Control K 2) Open Quickset dialog (TMA Operator's Manual, p. 58, Sec. 3.2.4)	SBL	P	Performance criteria checklist
b. Given an expanded Status and Schedule window, choose to turn on TBFM times on the MDM (i.e., controller's radar scope or DSR console) in accordance with the performance criteria checklist.	1) Single button click for this to display on the controller's scope 2) Check or uncheck a box 3) This is the last step in the process of set up	ILT SBL	P	Performance assessment
c. Given an expanded Status and Schedule window, use the Control function to choose Find Aircraft in accordance with the performance criteria checklist.	1) @ (Shift 2) 2) Open Find Aircraft dialog (TMA Operator's Manual, p. 58, Sec. 3.2.4)	SBL	P	Performance assessment
d. Given an expanded Status and Schedule window, use the Control function to choose Airport Configuration	1) Press F7 2) Open Airport Configuration Summary window (TMA Operator's Manual, p. 56,	SBL	P	Performance assessment

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Summary in accordance with the performance criteria checklist.	Sec. 3.2.2)			
e. Given an expanded Status and Schedule window, use the Control function to choose Freeze Horizons in accordance with the performance criteria checklist.	1) Select Freeze Horizons from the Control pull-down menu 2) The Freeze Horizons dialog box opens (TMA Operator's Manual, pp. 194 - 195, Sec. 7.9.4)	SBL	P	Performance assessment
f. Given an expanded Status and Schedule window, use the Control function to choose Delay Reporting in accordance with the performance criteria checklist.	1) Press F6 2) Open Delay Reporting Settings dialog (TMA Operator's Manual, p. 56, Sec. 3.2.2)	SBL	P	Performance assessment
g. Given an expanded Status and Schedule window, use the Control function to choose Print/View Delay Reporting in accordance with the performance criteria checklist.	1) Select Print/View Delay Reporting from the Control pull-down menu 2) The Print/View Delay Reporting Performance criteria checklist dialog box opens (TMA Operator's Manual, p. 201, Sec. 7.9.6)	SBL	P	Performance assessment
h. Given an expanded	1) Select Special Use Airspace	SBL	P	Performa

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Status and Schedule window, use the Control function to choose Special Use Airspace in accordance with the performance criteria checklist.	<p>from the Control pull-down menu, or press Control U</p> <p>2) The Special Use Airspace dialog box appears</p> <p>(TMA Operator's Manual, pp. 202 - 203, Sec. 7.9.7)</p>			nce assessment
i. Given an expanded Status and Schedule window, use the Control function to choose System Settings Recording in accordance with the performance criteria checklist.	<p>1) Select System Settings Recording from the Control pull-down menu</p> <p>2) The System Settings Recording dialog box appears</p> <p>(TMA Operator's Manual, pp. 205 - 206, Sec. 7.9.8)</p>	SBL	P	Performance assessment
j. Given an expanded Status and Schedule window, use the Control function to choose Print/View System Settings in accordance with the performance criteria checklist.	<p>1) Select Print/View System Settings from the Control pull-down menu</p> <p>2) The Print/View System Settings dialog box appears</p> <p>(TMA Operator's Manual, p. 209, Sec. 7.9.9)</p>	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 25: Given an operational TMA, you will be able to use the F4 Panel to schedule departures on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, use the F4 Panel to schedule departures in accordance with the performance criteria checklist.	1) Press F4 2) Select an unscheduled flight 3) Select the Schedule button in the upper-half of the Internal Departures window to bring up the dialog box for scheduling highlighted aircraft 4) The Schedule a Departure dialog box will open with these six parts a) Arrival airport and flight ID b) Flight plan c) Original Flight Estimate d) View/Change Scheduled Route e) Compute STA and Suggest Departure Time f) Buttons to freeze times, accept times, and close the window (TMA Operator's Manual, pp. 258 - 259, Sec. 8.8)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 26: Given an operational TMA, you will be able to reschedule an aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, use the Display function button to access the pull-down menu of options in accordance with the performance criteria checklist.	1) Select Display from the Status and Schedule window 2) A pull-down menu appears 3) Press the F1 key (TMA Operator's Manual, p. 211, Sec. 7.10)	ILT SBL	P	Performance assessment
b. Given a Configuration and Runway Settings dialog box, choose a configuration to use the Configurations method in accordance with the performance criteria checklist.	1) Select Configurations 2) A pull-down menu appears 3) Click on the desired configuration (TMA Operator's Manual, pp. 133 - 134, Sec. 7.2.1.1)	ILT SBL	P	Performance assessment
c. Given a Configuration and Runway Settings dialog box, choose an airport acceptance rate (AAR) to use the Configurations method in accordance with the performance criteria checklist.	1) Select Configurations 2) A pull-down menu appears 3) Click on the desired configuration 4) Use the arrow/spin button to select an AAR (TMA Operator's Manual, pp. 133 - 134, Sec. 7.2.1.1)	ILT SBL	P	Performance assessment
d. Given an expanded Status and Schedule window, perform the steps required to specify	1) A few optional runway parameters can be set using Step 2: Specify Runway Restrictions	SBL	P	Performance assessment

TLO 26: Given an operational TMA, you will be able to reschedule an aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
which airport's aircraft to reschedule in accordance with the performance criteria checklist.	2) Change the acceptance rates and occupancy times for each runway 3) Select the Include manually scheduled aircraft check button to have those aircraft rescheduled 4) Select Apply (TMA Operator's Manual, pp. 138 - 139, Sec. 7.2.1.2)			
Development Notes:				
Review Comments:				

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a timeline reference point type, perform the steps required to set up a blocked interval lifecycle (from creation to deletion) in accordance with the performance criteria checklist.	1) To block an interval on a meter fix timeline: a) Dwell the pointer in the center of the MFX timeline at one end of the interval b) Middle click and hold c) Enter Control and hold d) While holding both buttons, move the pointer to the other end of the	ILT SBL	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>interval to be blocked</p> <p>e) Release the middle click</p> <p>f) Release Control</p> <p>2) Note: there are two alternative ways to create blocked intervals</p> <p>(TMA Operator's Manual, p. 169, Sec. 7.5.1)</p>			
b. Given an operational TMA, choose to gather all relevant information to provide to the person who can make adaptation changes in accordance with the performance criteria checklist.	<p>1) Display route to observe issue/identify anomaly with the nominal route</p> <p>a) Example: choice could be to shorten or lengthen a route, but either way it will increase another controller's workload and affect accuracy of TMA</p> <p>2) Gather supporting data to provide to Cadre</p> <p>3) Cadre analyzes the data</p> <p>4) If unable to resolve, contact the system administrator</p> <p>5) The main point is to not give conflicting information to the system administrator</p> <p>6) Show the nominal route which will be modified as required</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given an expanded Status and Schedule window, revise future parameters in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) The Status and Schedule Window opens to show future scheduled changes <ol style="list-style-type: none"> a) While there are buttons to work with two future configurations, at present the system can only handle a single future configuration b) Future configuration changeover times are indicated on the timeline, in addition to in the Status and Schedule window 2) After this window expands, the user has the opportunity to input or revise future parameters 3) The three major operations, which are called from the top section, are: <ol style="list-style-type: none"> a) Configuration b) Airport Acceptance Rate (AAR) c) Separation Matrix 	ILT SBL	P	Performance assessment
d. Given access to an operational TMA, administer settings in accordance with the	<ol style="list-style-type: none"> 1) Most critical component of setting up the arrival rate 2) TMC sets up Runway Matrix settings and TRACON 	ILT SBL	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.	settings 3) Need to identify the buttonology 4) Works in concert with the TRACON buffer			
Development Notes:				
Review Comments:				

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation	Topic: Aircraft Scheduling Window	Time: 4 hours
Training Outcome P: Upon completion of this lesson, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on a TMA in an operational environment.		

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, change an aircraft's scheduled time of arrival (STA) in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Determine when a change is necessary 2) Review the pre-departure profiles to determine if scheduling times show any anomalies 3) Demonstrate how to make the change 4) Make the change 	ILT SBL	P	Performance assessment
b. Given a TGUI, manipulate the Aircraft Scheduling window to broadcast aircraft scheduling changes in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Make proper notification that a broadcast is going to occur <ol style="list-style-type: none"> a) Broadcast required message 2) Demonstrate how to broadcast 3) Broadcast 	ILT SBL	P	Performance assessment
c. Given a Browse Aircraft Dialog Box, select a pre-	<ol style="list-style-type: none"> 1) Press Control B 2) Type the ACID (aircraft ID) in 	ILT	P	Performance

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
identified flight in accordance with the performance criteria checklist.	the Search for flight box 3) Click on Search 4) Select the pre-identified flight on the timeline 5) If an ACID is entered for which multiple flights exist, a dialog box appears to allow the correct aircraft to be selected (TMA Operator's Manual, p. 246, Sec. 8.5)	SBL		assessment
d. Given a Status and Schedule window, determine the number of aircraft that crossed a meter fix in accordance with the performance criteria checklist.	1) This is a display function for TMC 2) One option is to left click on one aircraft and drag it to the other airplane a) All airplanes in between will be highlighted b) A dialog box will display the number 3) Another option is to press the F5 key a) A Traffic Count window will open	ILT SBL	P	Performance assessment
e. Given an operational TMA, display the meter list in accordance with	1) This is an ATCS function 2) DSR console function (run by HOST or being replaced by	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
the performance criteria checklist.	<p>ERAM)</p> <p>3) To turn on/off meter lists from display keys on the DC view, toggle TMA LIST on the Display Filter Selection Panel on the DSR MDM</p> <p>4) Toggle the On/Off DSR buttons on the window display TMA Meter Lists allow the ATCS to understand the sequence of the arrival flow through their sector, however when multiple airports are being metered the lists can take up considerable space on the MDM</p> <p>5) To reduce the size of the Meter Lists, a new feature in the TBFM software called Meter List Alternate Sequence (MLAS) can be adapted to change the parameter at which aircraft will populate or drop from a sector Meter List (Adapted at ZOB – need SME input)</p>			nt
f. Given a Meter List	1) This is an ATCS function	ILT	P	Performa

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
display, show what is on the scope in accordance with the performance criteria checklist.	2) Turn the scope on 3) Identify which aircraft are being metered 4) Find the ETA, STA, DCT 5) CPC would need to determine if the list is out of order by looking at the list	SBL		nce assessment
g. Given a Meter List display, manipulate the list to order the aircraft in accordance with the performance criteria checklist.	1) One way is to swap aircraft A and aircraft B a) Type "SW" b) Hit spacebar c) Type computer ID (CID) or aircraft ID (AID) d) Hit spacebar e) Type computer ID or aircraft ID f) Hit Enter g) The two STAs will change 2) Another option is to resequence, which incorporates the same swap steps after typing "SQ" but for three to five aircraft 3) Swaps or resequencing can only occur if the aircraft are in the controller's sector and the controller has control of them all	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
h. Given a runway configuration, perform the steps to reassign an aircraft to a different runway in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) This is for TMC only 2) If you assign an aircraft to a different runway, for that aircraft only, it receives all new STAs (changes all delay times on CPC scopes) 3) To manually schedule, which is not encouraged, drag an aircraft to a runway, then you'll see a green or red bar appear on the timeline <ol style="list-style-type: none"> a) Green means that the re-assignment meets separation standards b) Red means that re-assignment can be performed, but it does not meet the separation standards 4) The preferred option is to Right click on aircraft <ol style="list-style-type: none"> a) Choose "Assign Runway" from the drop-down box b) Choose the runway assignment from the drop-down box c) Once the runway 	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	assignment is chosen, the re-assignment will be processed			
i. Given a TGUI display, use the Reschedule commands in accordance with the performance criteria checklist.	1) Right click on an aircraft 2) Choose Reschedule command from the drop-down box a) Choose aircraft call sign i) Reschedule a single aircraft ii) The only times that will change are the times on the one aircraft b) Choose "All" to reschedule all i) Changes STAs on all aircraft ii) Review timelines to ensure that TMA rescheduled correctly iii) If notice that one time is an anomaly, then resolve the anomaly prior to broadcasting c) If want to reschedule <u>and</u> broadcast, do it in two steps, not one d) The one step, which is not	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>encouraged, is to choose "All and Broadcast"</p> <p>i) Changes STAs and sends the broadcast to all CPC scopes</p> <p>ii) This option should be used CAUTIOUSLY</p>			
j. Given a TGUI display, use the Broadcast commands in accordance with the performance criteria checklist.	<p>1) Right click on an aircraft</p> <p>2) Choose Broadcast command from the drop-down box</p> <p>3) Only want to broadcast once</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment
Development Notes: Look for pre-departure profiles when performing configuration changes and when scheduling aircraft for release. Scheduling times may show an anomaly as a result.				
Review Comments:				

ILT Module 7: Additional Features

Lesson: TGUI Features Data Production	Topic: TGUI Features Data	Time: 2 hours
Training Outcome Q: Upon completion of this lesson, you will be able to produce data using TGUI features on a TMA in an operational environment.		

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, utilize a Quick Key command to complete an action in accordance with the performance criteria checklist.	1) Press the Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key 3) Display airport data by pressing down Control + A 4) Obtain a traffic count by selecting F5 5) Close window by pressing down Alt + F4 (TMA Operator's Manual, p. 266, Sec. 9.1)	SBL	P	Performance assessment
b. Given an operational TMA, access the Broadcast Status Indicator dialog box in accordance with the	1) Press Control D (TMA Operator's Manual, p. 272, Sec. 9.3)	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.				
c. Given a Weather Input Options and System Parameters dialog box, change system parameters in accordance with the performance criteria checklist.	1) Press Control W 2) Toggle the On/Off buttons next to Reschedule for MP change a) Controls whether TMA reschedules aircraft when flights are switched between specific meter fixes b) Allows change of flights to nearby streams without changing frozen STAs (TMA Operator's Manual, p. 271, Sec. 9.2)	SBL	P	Performance assessment
d. Given a need to send a general information message from TMA, perform the steps necessary to send it in accordance with performance criteria checklist.	1) Message to HOST/ERAM dialog provides the capability for the operator to send HOST/ERAM messages (e.g., general information, interface test) 2) Access the Control pull-down menu 3) Choose the Send option (TMA Operator's Manual, Sec.	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	7.9.10)			
Development Notes:				
Review Comments:				

ILT Module 8: PGUI Map Display Options

Lesson: PGUI Map Options Identification	Topic: PGUI Map Options	Time: 30 minutes
Training Outcome R: Upon completion of this lesson, you will be able to identify the options displayed on the PGUI map in an operational environment.		

TLO 30: Given a PGUI display, you will be able to identify the options displayed on the PGUI map with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the F3 key with at least 70% accuracy.	1) Review the keyboard 2) F3 key (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
b. Given a PGUI display, identify an option displayed on the PGUI map with at least 70% accuracy.	1) F3 key 2) Discuss the Map Options panel 3) Select Map button (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: PGUI Map Options Modification	Topic: TGUI Map Options (continued)	Time: 1 hour
Training Outcome S: Upon completion of this lesson, you will be able to modify the options displayed on the PGUI map within the TMA in an operational environment.		

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the F3 Key to view a Center's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All Center from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
b. Given a PGUI display, use the F3 Key to view a TRACON's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All TRACON from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a PGUI display, use the F3 Key to view selected gate airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose SOUTH-GATE from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
d. Given a PGUI display, use the F3 Key to suppress the map display in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose No Map from the list of available PGUI map options 5) Suppressing the map is useful to clearly see the sequence list or other features without the map displays interfering (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 9: Setup Options

Lesson: PGUI Display Creation	Topic: PGUI Display	Time: 2 hours
Training Outcome T: Upon completion of this lesson, you will be able to create a PGUI display with customized dynamic elements on a TMA in an operational environment.		

TLO 32: Given a General Setup Options panel, you will be able to create a PGUI display with customized dynamic elements on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a General Setup Options panel, create a PGUI display using elements in accordance with the performance criteria checklist.	1) Press the F2 key 2) Choose the buttons and slide bar options (TMA Operator's Manual, p. 283, Sec. 11.1.1)	ILT SBL The performance criteria checklist will include providing the learner with a screen shot of a PGUI and ask them to replicate the general positioning of the components shown in the screen shot	P	Performance assessment
b. Given a Map Display	1) Press the F2 key	ILT	P	Performance

TLO 32: Given a General Setup Options panel, you will be able to create a PGUI display with customized dynamic elements on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Features sub-panel, choose the PGUI capabilities in accordance with the performance criteria checklist.	2) Choose one of the five capabilities a) Scratch Pad Available b) Zoom Available c) PGUI Clock d) VFR Aircraft e) TRACON Datablocks shown in Center (TMA Operator's Manual, pp. 295 - 298, Sec. 11.3)	SBL		nce assessment
Development Notes:				
Review Comments:				

ILT Module 10: Map Options

Lesson: PGUI Map Options	Topic: F3 Key Options	Time: 30 minutes
Training Outcome U: Upon completion of this lesson, you will be able to recall the PGUI map options on a TMA in an operational environment.		

TLO 33: Given a Map Options (F3) panel, you will be able to recall the PGUI map options on an operational TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map Options (F3) panel, recall PGUI map options on an operational TMA with at least 70% accuracy.	1) Map Options <ul style="list-style-type: none"> a) Brightness Controls b) Range Rings c) Fixes d) Routes e) Boundaries f) Sector Data (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice

Development Notes:

Review Comments:

Lesson: PGUI Map Manipulation	Topic: PGUI Map Features and Files	Time: 1 hour
Training Outcome V: Upon completion of this lesson, you will be able to manipulate the PGUI map features and display on a TMA in an operational environment.		

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map View Options (F3) panel, select PGUI files in accordance with the performance criteria checklist.	1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a file name from the list and click the Apply button (TMA Operator's Manual, p. 300, Sec. 12.1)	SBL	P	Performance assessment
b. Given a Map Option (F3) panel, select PGUI features in accordance with the performance criteria checklist.	1) Adjust these two Brightness Controls features: a) Datablock b) Sequence List 2) Adjust the Initial Radius for the Range Rings feature 3) Select the Meter Points box as the Fixes figure 4) Select the Preferred Departure Routes for the Routes feature (TMA Operator's Manual, p. 277, Sec. 10.1)	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a Map Options (F3) panel, manipulate the map perspective on the PGUI in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a filename from the list 4) Click the Apply button 5) Click on the Center Zoom File Save button 6) Select a filename from the list 7) Click the Save button 8) Click on the TMA button next to Set View from Sector Menu 9) Select a pre-defined PGUI sector map from a drop-down list 10) Click on the Map Options panel OK button 11) Click on the Set Map Range button 12) Hold the mouse button down, scroll down the list, select the desired range and release the mouse button 13) Click on the Map Options panel OK button 14) Click on the Set Map Range Full Map button 	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	15) Click on the Map Options panel OK button (TMA Operator's Manual, pp. 300 - 305, Sec. 12.1)			
Development Notes:				
Review Comments:				

ILT Module 11: Default File Load Options

Lesson: Manipulation of Files Using the Load Display Files Panel	Topic: Load Display Files Panel	Time: 1 hour
Training Outcome W: Upon completion of this lesson, you will be able to use the Load Display Files Panel to manipulate files stored on a TMA in an operational environment.		

TLO 35: Given a PGUI display, you will be able to use the Load Display Files Panel to manipulate files stored on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify a file stored on an operational TMA with at least 70% accuracy.	1) Files are stored on TMA 2) Examples of why certain files may need to be accessed 3) How files are accessed (TMA Operator's Manual, p. 313, Sec. 13.2.1)	ILT	C	Multiple choice
b. Given a PGUI display, use the F4 Key to view the Load Display Files panel in accordance with the performance criteria checklist.	1) Press the F4 key 2) The Load Display Files panel appears (TMA Operator's Manual, p. 312, Sec. 13.1)	ILT SBL	P	Performance assessment
c. Given the Load Display Files (F4) panel, select a file in accordance with the performance criteria checklist.	1) Click the Open button next to Map File 2) Select a file 3) Load the file 4) Click the Save button	ILT SBL	P	Performance assessment

TLO 35: Given a PGUI display, you will be able to use the Load Display Files Panel to manipulate files stored on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	5) Click the OK button (TMA Operator's Manual, p. 312, Sec. 13.1)			
Development Notes:				
Review Comments:				

ILT Module 12: Sequence Options

Lesson: Sequencing and Its Effects	Topic: Sequence List	Time: 4 hours
Training Outcome X: Upon completion of this lesson, you will be able to identify the sequence lists on a TMA in an operational environment.		

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, define the three Sequence List categories with at least 70% accuracy.	1) Sequence List Traffic: Identifies aircraft included in the Sequence List 2) Sequence List Data: Identifies data displayed in the Sequence List 3) Sequence List Format: Identifies how the Sequence List is displayed (i.e., what order the aircraft are in, how precise the times are, in a compact or spread-out format) (TMA Operator's Manual, pp. 321 - 333, Sec. 14.5)	ILT	C	Multiple choice
b. Given a change in any information in the F1 panel, explain the effects	1) Change in TMA occurs 2) Time change not shown on controller's scope	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
of rippling the list with at least 70% accuracy.	3) TMA is broadcast 4) Possible 15 min delay on one aircraft. 5) TMA must be rippled again and re-broadcast 6) End result is additional work at adjacent centers to accommodate new delays			
c. Given the F1 panel, describe why the arrival rate is important with at least 70% accuracy.	1) Normal arrival rate (as example) is 60 a) TMA divides this into four 15-minute periods b) Landing an aircraft every minute c) Separation at final is 2.5 2) Tower requests arrival rate to be 30 a) If only change made is arrival rate, TMA divides aircraft into 8, 8, 7, 7 b) Will schedule them together c) Alternatively, if re-set spacing for 5 at final, then the arrival rate will take care of itself 3) Arrival rate is only important if it is set too low; it can't be	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	set too high 4) Arrival rate that is set too high does not make a difference as long as spacing on final is set up accurately			
d. Given the F1 panel, describe why changing the configuration is important with at least 70% accuracy.	1) It is important that the configuration in TMA match the configuration the airport is in 2) When configuration is changed, the list will be rippled	ILT	C	Multiple choice
e. Given a local example, describe the requirements associated with resequencing the aircraft with at least 70% accuracy.	1) TMC can resequence 2) If resequence an aircraft, STAs will be changed 3) Do not want to change STAs without advising the CPC	ILT	C	Multiple choice
f. Given an initially developed matrix, identify the impact of adjusting the buffer on the arrival rate with at least 70% accuracy.	1) Separation standards with the absolute minimums 2) Instead of running the minimum standard separation, create a buffer of, for example, three-tenth of a mile 3) If the buffer is adjusted, then all the STAs on the matrix	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	will change			
g. Given a need to reduce delays, describe the effects of a drag and drop action with at least 70% accuracy.	1) When drag and drop, red light and green light appear on the bar 2) Will change runway times, meter fix times, and outer meter fix times 3) Only guaranteed separation on the timeline to which the aircraft is dragged a) All the STAs will be changed so the CPC will receive new STAs b) Separation is no longer guaranteed 4) If drag and drop to runway, will only get separation at the runway, not at the meter fix, too	ILT	C	Multiple choice
h. Given delays, describe methods to modify times with at least 70% accuracy.	1) The only way to modify times is to reschedule 2) There are several ways to reschedule (review notes above)	ILT	C	Multiple choice
i. Given a mixed fleet, describe how airport capacity is affected with at least 70% accuracy.	1) Matrix window has 36 cells (6x6) 2) With relationship to the Separation Matrix	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) Lose a lot of capacity because separation matrix is bigger for mixed fleets			
Development Notes:				
Review Comments:				

Lesson: Manipulation of the Sequence Lists Using the Sequence List Options Panel	Topic: Sequence List Options Panel	Time: 1 hour
Training Outcome Y: Upon completion of this lesson, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on a TMA in an operational environment.		

TLO 37: Given a PGUI display, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the Sequence List Options (F7) panel, select the PGUI sequence list display option in accordance with the performance criteria checklist.	1) Press the F7 key 2) The Sequence List Options panel appears 3) Click on the Display Sequence List checkbox 4) Review the possible sequence list PGUI tool feature values (TMA Operator's Manual, p.	SBL	P	Performance assessment

TLO 37: Given a PGUI display, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	319, Sec. 14.2)			
b. Given a Sequence List Options (F7) panel, select a PGUI file in accordance with the performance criteria checklist.	1) Press the F7 key 2) The Sequence List Options panel appears 3) Click on the Sequence File Open button 4) A file selection dialog box will appear (TMA Operator's Manual, p. 319, Sec. 14.3)	SBL	P	Performance assessment
c. Given a Sequence List Options (F7) panel, choose a customized PGUI file in accordance with the performance criteria checklist.	1) Press the F7 key 2) The Sequence List Options panel appears 3) Click on the Sequence File Open button 4) A file selection dialog box will appear (TMA Operator's Manual, p. 319, Sec. 14.3)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 13: PGUI Timeline Options

Lesson: Definition of Timeline Options Panel	Topic: Timeline Options	Time: 30 minutes
Training Outcome Z: Upon completion of this lesson, you will be able to describe the Timeline Options panel parts on a TMA in an operational environment.		

TLO 38: Given a PGUI display, you will be able to define the Timeline Options panel parts on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Timeline Options panel with at least 70% accuracy.	1) Individual display options can be accessed via the F10 key: Timeline Options Panel 2) User can choose whether to display timelines, whether to stack timelines, and how many timelines to display	ILT	C	Multiple choice
b. Given a Timeline Options panel, describe the four distinct parts of the panel with at least 70% accuracy.	1) The four distinct parts are: a) Timeline defaults files b) Number of timelines c) Set up options for each side of each timeline d) Color options	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Creation of an PGUI Timeline Display Using the Timeline Options Panel	Topic: PGUI Timeline Options	Time: 1 hour 30 minutes
Training Outcome AA: Upon completion of this lesson, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on a TMA in an operational environment.		

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI timeline display, discuss the Quick Copy operations with at least 70% accuracy.	1) Ability to streamline the development of multiple timelines based on one setup 2) Have the ability to copy: <ul style="list-style-type: none"> a) An entire timeline b) An entire timeline side c) A single option on a timeline or timeline side (TMA Operator's Manual, pp. 349 - 357, Sec. 15.5)	ILT SBL	C	Multiple choice
b. Given a Timeline Options panel, explain options to change the aircraft tag color with at least 70% accuracy.	1) Ability to change the color appearance of the following: <ul style="list-style-type: none"> a) ETA b) STA Frozen c) STA Unfrozen (TMA Operator's Manual, p. 357, Sec. 15.6)	ILT SBL	C	Multiple choice
c. Given a Timeline Options (F10) panel, access the	1) Press the F10 key 2) Click on the Open button	ILT	P	Performance

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
PGUI files in accordance with the performance criteria checklist.	3) Select a default file from the Timeline File Selection list 4) Click Apply 5) Press the F10 key 6) Click on the Save button 7) Select a default file from the Save Timeline File list 8) Click OK (TMA Operator's Manual, pp. 336 - 338, Sec. 15.2.1 - 15.2.2)	SBL		assessment
d. Given a PGUI display, choose the timeline appearance options in accordance with the performance criteria checklist.	1) Select the Display Timelines checkbox 2) Select the Stack Timelines checkbox 3) Select the Number of Timelines option 4) For each timeline, the following options can be set: a) Length b) Gap c) Reference 5) Four options can be set separately for the left and right side of each timeline: a) Arrival Type b) Aircraft Size c) Meter Fixes	ILT SBL	P	Performance assessment

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	d) Runways (TMA Operator's Manual, pp. 338 - 349, Sec. 15.3 - 15.4)			
Development Notes:				
Review Comments:				

ILT Module 14: Control Panel

Lesson: Datablock Options Capabilities	Topic: Researcher Control Panel	Time: 1 hour
Training Outcome BB: Upon completion of this lesson, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on a TMA in an operational environment.		

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Researcher Control Panel with at least 70% accuracy.	1) Accessed by the F11 key (TMA Operator's Manual, p. 359, Sec. 16.1)	ILT	C	Multiple choice
b. Given a PGUI display, describe the Researcher Control Panel with at	1) Provides configuration of the data elements displayed in an aircraft's Datablock and	ILT	C	Multiple choice

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
least 70% accuracy.	customizes the Color of the various PGUI elements (TMA Operator's Manual, p. 359, Sec. 16.1)			
Development Notes:				
Review Comments:				

Lesson: Manipulation of an Aircraft's Datablock Element Display and Color Scheme	Topic: PGUI Color Files and Capabilities	Time: 1 hour
Training Outcome CC: Upon completion of this lesson, you will be able to manipulate an aircraft's Datablock element display and color scheme on a TMA in an operational environment.		

TLO 41: Given a PGUI display, you will be able to manipulate an aircraft's Datablock element display and color scheme on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Datablock Options Panel, explain the PGUI capabilities with at least 70% accuracy.	1) Explain how to access the Datablock 2) How to make changes 3) How to save changes	ILT SBL	C	Multiple choice
b. Given a Researcher Control Panel, select PGUI color files in accordance with the performance criteria checklist.	1) Open and save buttons 2) Load Defaults Colors button (TMA Operator's Manual, p. 363, Sec. 16.3)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions	Topic: Traffic Management Functions	Time: 4 hours
Training Outcome DD: Upon completion of this lesson, you will be able to identify the PGUI traffic management functions on a TMA in an operational environment.		

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify separation data between two points in accordance with at least 70% accuracy.	1) Describe how separation data is accessed (TMA Operator's Manual, p. 365, Sec. 17.3)	ILT	C	Multiple choice
b. Given access to an operational TMA, identify all the display information options with at least 70% accuracy.	1) Include buttonology on how to develop and manipulate Datablocks on a PGUI 2) Make decisions on how to build the graphical display of the Datablock	ILT	C	Multiple choice
c. Given access to an operational TMA, explain the PGUI Datablock display information with at least 70% accuracy.	1) Explain what is displayed in the PGUI Datablock	ILT	C	Multiple choice
d. Given the Winds/Temperature panel, describe the	1) WDPD gets the site-specific GRIB file from TMA Remote Weather System (CREWS),	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
weather data generated by the Weather Data Processing Daemon (WDPD) with at least 70% accuracy.	<p>converts it to a binary format, and broadcasts the file to configured weather Clients (PGUI and TGUI). CREWS get the weather file on an hourly basis from the National Weather Service (NWS)</p> <p>2) Describe the following on the panel:</p> <ul style="list-style-type: none"> a) Date b) Time c) Forecast Hour d) Altimeter Setting e) Altitude f) Direction g) Wind Speed h) Temperature <p>(TMA Operator's Manual, p. 367, Sec. 17.5)</p>			
e. Given the interface control document, identify when it is appropriate to change settings within the parameters of the interface control document at least 70%	<ul style="list-style-type: none"> 1) Interface control document 2) Settings for which Cadre can work with FAST to utilize 3) Not software; be able to have an educated discussion with FAST team 4) Problem or initial adaptation 	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.				
f. Given an operational TMA, identify when it is appropriate to suspend aircraft with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Suspending an aircraft removes that aircraft from normal arrival traffic scheduling calculations 2) To temporarily increase acceptance rate without adjusting metering rates (EX: a few unexpected visual approaches outside of the normal flow) 3) EX: When a brief period of unexpected VAPS have occurred to a different runway (aircraft leaving the main metered flow), it may be appropriate to suspend these aircraft since they are no longer taking up space on the metered flow. If these aircraft have already arrived, suspending a few aircraft on the metered flow may be appropriate 4) On the PGUI a suspended aircraft is highlighted for a brief amount of time then just looks like a regular aircraft 	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 366, Sec. 17.4)			
g. Given a STAR route, explain why it is converted into TMA routes with at least 70% accuracy.	<ol style="list-style-type: none"> 1) STAR is a pre-planned IFR air traffic control arrival procedures published in graphic and/or text form 2) STARS provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area 3) In calculating ETAs, TMA analyzes the possible routes and trajectories that an aircraft is likely to take based on factors such as assigned meter fix, destination airport, airport configuration, engine type and approach segment, and the aircraft's current position, altitude, heading, and speed 4) STAR routes must be configured in TMA in order for the system to calculate ETAs, just like all other routes and airport 	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	configurations (TMA Operator's Manual, Sec. 1.3)			
h. Given an operational TMA, identify relevant situational information with at least 70% accuracy.	1) TMA information is paired down to determine what information is needed to run a particular flow	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Use of the PGUI Traffic Management Functions	Topic: Functional Keys and Displays	Time: 6 hours
Training Outcome EE: Upon completion of this lesson, you will be able to utilize the PGUI traffic management functions on a TMA in an operational environment.		

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI, use the pointer to display a limited aircraft data message in accordance with the performance criteria checklist.	1) Dwell the pointer on the aircraft symbol 2) If the Sequence List is displayed, dwell the pointer on the line corresponding to that aircraft (TMA Operator's Manual, p. 364, Sec. 17.1)	SBL	P	Performance assessment
b. Given a complete arrival and departure list in TMA, use the PGUI traffic management functions to prioritize it in accordance with the performance criteria checklist.	1) The PGUI provides a text-based Sequence List display 2) The list includes a user-defined row of column headers followed by rows of aircraft-specific information organized within each by selected grouping <ul style="list-style-type: none"> a) For example, meter fix, runway, etc. b) The first column in each row is always the aircraft ID (ACID) 	ILT SBL	P	Performance assessment

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) Configure the sequence list display with the Sequence List Options (F7) panel			
c. Given a PGUI, use the pointer and keyboard to display the Flight Plan panel in accordance with the performance criteria checklist.	1) Dwell the pointer on the aircraft symbol 2) Type f to display the Flight Plan panel a) CID (HOST computer ID) b) ACID c) Aircraft Type and Equipment d) Beacon Code e) True Airspeed or Match Number f) Altitude g) Flight Route h) Meter Fix i) Runway (TMA Operator's Manual, p. 364, Sec. 17.2)	ILT SBL	P	Performance assessment
d. Given a PGUI, use the F8 Key to display the TRACON Connection Status panel in accordance with the performance criteria checklist.	1) Press the F8 key 2) The PGUI TRACON Connection Status panel appears 3) If the TRACON Connection Status checkbox is selected, the message displays	ILT SBL	P	Performance assessment

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>TRACON Data Available on the PGUI map if any of the ARTS or STARS interfaces are connected, and displays TRACON Data Unavailable if none are connected</p> <p>4) If the Popup Window on Status Change checkbox is selected, the panel pops up when there is a change in any of the TRACON connections</p> <p>(TMA Operator's Manual, p. 371, Sec. 18.1)</p>			
e. Given a PGUI display, choose to temporarily suspend an aircraft from normal arrival traffic scheduling calculations in accordance with the performance criteria checklist.	<p>1) Dwell on the aircraft symbol or Datablock</p> <p>2) Press "x"</p> <p>3) A scheduling suspension notice will appear</p> <p>4) The STA for the aircraft in the Sequence List will change to "xxxx" and the ETA will be enclosed within square brackets</p> <p>(TMA Operator's Manual, p. 366, Sec. 17.4)</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment
f. Given access to an	1) Bring up maps	ILT	P	Performance

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
operational TMA, choose to display different views or lists in accordance with the performance criteria checklist.	2) Bring up sequence lists	SBL		nce assessment
Development Notes:				
Review Comments:				

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, administer the Datablock completely in accordance with the performance criteria checklist.	1) Provide a scenario to build out the Datablock using a checklist 2) Learners should be able to make decisions on how to build the graphical display of the Datablock 3) Explain that this is often driven by preference (TMA Operator's Manual, pp. 359 - 362, Sec. 16.2)	ILT SBL	P	Performance assessment
b. Given access to an operational TMA, develop the Datablock in	1) Select the filename of the Datablock file last loaded 2) Call up the Datablock File	ILT SBL	P	Performance assessment

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accordance with the performance criteria checklist.	<p>Selection panel by selecting the Open button</p> <p>3) Call up the Save Datablock File panel by selecting the SAVE button</p> <p>(TMA Operator's Manual, p. 359, Sec. 16.2)</p>			nt
c. Given access to an operational TMA, construct the Datablock graphical display in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Select the Datablock Type 2) Select the Datablock Line Number 3) Select the Compress Line 4) Select the Field 5) Assign multiple items to be timeshared in a single Field 6) Change the Datablock Options drop-down box 7) Enable/Disable (On/Off) the data selected for the specified line 8) Open the APPEND ITEMS Panel by pressing the Append Items button 9) Select a Seconds value for timesharing 10) Select Item Mode 11) Select the Color Options using the drop down menu 	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 359 - 362, Sec. 16.2)			
Development Notes:				
Review Comments:				

ILT Module 16: En Route Departure Capability

Lesson: Traffic Flows	Topic: Ground Delay Program and EDCT	Time: 1 hour
Training Outcome FF: Upon completion of this lesson, you will be able to describe traffic flows in an operational environment.		

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define a ground delay program with at least 70% accuracy.	1) Why double delays occur 2) Impact of circumventing double delays (what happens if freeze early in an attempt to preserve list) a) What does it look like when you have a ground delay program going on? b) What is the impact of manipulating the ground delay programs?	ILT	C	Multiple choice
b. Given access to an operational TMA, describe what the EDCT characters look like with at least 70% accuracy.	1) EDC is an enhancement to TMA deployed at ARTCCs where an en route departure and metering functionality is required 2) EDC displays a) TGUI b) PGUI c) Single GUI configuration	ILT	C	Multiple choice

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 389 - 390, Sec. C.1.1 - C.2.2.1)			
Development Notes:				
Review Comments:				

Lesson: Management of Traffic Flows Using the EDC Tool	Topic: EDC Tool	Time: 2 hours
Training Outcome GG: Upon completion of this lesson, you will be able to use the EDC tool to manage traffic flows in an operational environment.		

TLO 46: Given the EDC tool, you will be able to manage traffic flows in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the EDC tool, define the EDC tool with at least 70% accuracy.	1) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary 2) Traffic flow describes the aircraft that are departing from or bound for an airport (TMA Operator's Manual, p. 388, Sec. C.1)	ILT refresher	C	Multiple choice

TLO 46: Given the EDC tool, you will be able to manage traffic flows in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
b. Given a Multiple Super Stream De-confliction (MSSD) group, utilize EDC to set en route mile-in-trail restrictions in accordance with the performance criteria checklist.	1) Select View on the Stream Classes for Time Based Metering dialog 2) The View Super Stream Groups dialog appears 3) Enter a new value in the spin box 4) Press the Apply button (TMA Operator's Manual, p. 402, Sec. C.2.3.9)	ILT SBL	P	Performance assessment
c. Given the EDC tool, manage en route traffic flows exiting an ARTCC to an adjacent ARTCC in accordance with the performance criteria checklist.	1) Demonstrate how to set up a blank EDC to meter outbound flows	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change	Topic: En Route Anomalies and Differences	Time: 4 hours
Training Outcome HH: Upon completion of this lesson, you will be able to solve problems on an operational TMA.		

TLO 47: Given a problem on an operational TMA, you will be able to identify the best method to communicate the issue the designated point of contact with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an arrival and departure list, identify an anomaly with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Anomaly or just new to the user <ol style="list-style-type: none"> a) Example - visual depiction of fleet mix appears normal except for a large gap where demand exists 2) Research - take a screen shot, talk with colleagues, find a FAST person or test it in the Support String 3) Example - Aircraft times are off. One aircraft is 15 minutes off. In the event of a large gap, an aircraft can be swapped, indicator is a break in uniform visual 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 48: Given access to an operational TMA, you will be able to discuss when it is appropriate to initiate an adaptation change with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, explain why routes have different configurations with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Routes pre-configured within TRACON adaptation have to be as accurate as possible; if routes are inaccurate, they will negatively impact the schedule 2) Based on how each facility has set up TMA 3) Internal satellites affect how airports input flows into existing streams 4) Routes adapted inside of a TRACON should be adapted to real-time operation. Incorrect routes will have negative affect on schedule 5) Most efficient route of flights is based on restrictions (noise abatement and route planning) 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA with a technical problem, describe what can be done at a national level with at least 70% accuracy.	1) What can be done at the local level 2) What can be done externally; reaching to other towers and the Help Desk	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
b. Given a STAR, describe the en route trajectory with at least 70% accuracy.	1) What changes to a STAR should be annotated and forwarded to technicians	ILT	C	Multiple choice
c. Given access to an operational TMA, describe how speeds will be transmitted with at least 70% accuracy.	1) Profile in TMA regarding the following items: a) LOA may have changed b) STAR c) Type of aircraft may have changed	ILT	C	Multiple choice
d. Given access to an operational TMA, explain the difference between a red x on the scope and a red x on TMA on a scope with at least 70% accuracy.	1) Red X on a scope means a controller is not receiving HOST data 2) Red X on TMA means TMA is not receiving HOST data and cannot be used to meter	ILT	C	Multiple choice
e. Given an operational TMA, identify the Print Screen button with at least 70% accuracy.	1) TGUI hot keys on the keyboard and describe how to use print screen: a) Place the cursor in the desired display b) Press the Print Screen button c) Left click the mouse (TMA Operator's Manual, p. 58, Sec. 3.2.4)	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
f. Given an operational TMA, define Amount of Delay Taken (AMDT) with at least 70% accuracy.	1) AMDT definition 2) How to access AMDT (TMA Operator's Manual, p. 165, Sec. 7.4.4)	ILT	C	Multiple choice
g. Given an operational TMA, define Single Gate Free Flow (SGFF) with at least 70% accuracy.	1) The third of three Gate and MFX parameters 2) Located on the Status and Schedule window (TMA Operator's Manual, p. 159, Sec. 7.4.3.1)	ILT	C	Multiple choice
h. Given an operational TMA, define Free Flow Parameter (FFP) with at least 70% accuracy.	1) The Free Flow Parameter dialogue allows for the minimum delay that a SGFF aircraft must have to qualify for scheduling preference over a non-SGFF aircraft 2) The value is expressed as a percentage, and applied to each aircraft's TRACON buffer a) 0% leaves no gaps in the runway schedule - the SGFF aircraft will receive preference when it schedules behind the aircraft directly ahead of it	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>on the runway at the minimum separation that will meet the runway constraints</p> <p>b) At 70%, the SGFF aircraft will receive preference when its total runway delay equals its TRACON buffer</p> <p>(TMA Operator's Manual, p. 165, Sec. 7.4.4)</p>			
Development Notes:				
Review Comments:				

Lesson: Communicating Anomalies	Topic: Options and Processes to Communicate Anomalies	Time: 3 hours
Training Outcome II: Upon completion of this lesson, you will be able to perform the steps required to communicate anomalies on an operational TMA.		

TLO 50: Given an anomaly on an operational TMA, you will be able to perform the steps required to communicate the issue to the designated point of contact in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, summarize what information needs to be communicated to CPCs with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Details to be relayed to the Supervisor 2) Supervisor hands the information to the TMC 3) TMC would either resolve the issue or escalate it to the Cadre <ol style="list-style-type: none"> a) If resolved, he reports actions taken to the Supervisor and any actions the controller needs to take b) If unresolved inform the Supervisor the issue is being escalated and what action the CPC should take 4) The Cadre would inform the CPC's Supervisor on action taken to resolve the issue 	ILT	C	Multiple choice
b. Given the identification of an anomaly, describe	<ol style="list-style-type: none"> 1) Data regarding the anomaly is collected 	ILT	C	Multiple choice

TLO 50: Given an anomaly on an operational TMA, you will be able to perform the steps required to communicate the issue to the designated point of contact in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
the process to file tickets with at least 70% accuracy.	2) Data is giving to the Cadre 3) Cadre then enters a site report which is sent to the technician			
c. Given the identification of an anomaly, use the Print Screen button to capture a screen shot in accordance with the performance criteria checklist.	1) Print the current screen a) Place cursor in desired display b) Press Print Screen and left click mouse 2) Send GUI screen shot and description for analysis to WJHTC a) Place cursor in desired display b) Press Shift + Print Screen and left click mouse (TMA Operator's Manual, p. 70, Sec. 4.2.2)	ILT	p	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 18: Procedures

Lesson: Procedures	Topic: TMA Procedures	Time: 16 hours
Training Outcome JJ: To be determined upon national TMA procedure acceptance.		

TLO 51: To be determined upon national TMA procedure acceptance.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. To be determined upon national TMA procedure acceptance.	1) To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.
Development Notes:				
Review Comments:				

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Course Title: Traffic Management Advisor (TMA) for ATCSCC

Course Goal(s): The goals of this course are for the learner to be able to describe how TMA components are used to safely and efficiently manage metering, and explain the impact of TMA actions on other elements of the NAS as it applies to their job duties.

WBT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 35 minutes
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used f) Hardware and software versions	WBT ILT refresher	C	Multiple choice

Development Notes:

Review Comments:

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	WBT ILT refresher	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	WBT ILT refresher	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary	WBT ILT refresher	C	Multiple choice
Development Notes:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, discuss how an aircraft route change affects the system with at least 70% accuracy.	1) Explain how changing an aircraft route affects nearby sectors and the NAS 2) Highlight how decisions and actions impact other airspaces (encourage “a cooperative environment through enhanced global situational awareness”) 3) Give an example of how an arrival over an inbound fix, such as an emergency aircraft, becomes a No Fix and how that affects the TMA schedule	WBT ILT refresher	C	Multiple choice
b. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data	WBT ILT refresher	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>display</p> <ul style="list-style-type: none"> i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90 c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA) d) Scheduling factors e) Scheduling constraints <p>2) Explain the efficiency gained by using TMA</p>			

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Development Notes:				
Review Comments:				

WBT Module 2: GUI Features

Lesson: TMA GUI Features	Topic: GUI Features and Functionality	Time: 20 minutes
Training Outcome B: Upon completion of this lesson, you will be able to explain each of the Graphical User Interface (GUI) components of the TMA in an operational environment.		

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify a main component of the TMA in accordance with at least 70% accuracy.	1) TGUI 2) PGUI (TMA Operator's Manual, pp. 26 - 28)	WBT ILT refresher	C	Multiple choice
b. Given access to a TGUI environment, describe the TGUI features with at least 70% accuracy.	1) Features overview (TMA Operator's Manual, pp. 26 - 27)	WBT ILT refresher	C	Multiple choice
c. Given a review of the TMA GUI features, identify the features with at least 70% accuracy.	1) Application Window 2) Active Window 3) Dialog Box 4) Window Tiling 5) Minimizing a window 6) Optional Window Components/Menu Bar 7) Push Buttons 8) Check Buttons 9) Choice Buttons 10) Radio Buttons	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	11) Spin Buttons 12) Display Buttons 13) Slider Bar 14) Text Entry Fields			
d. Given access to an operational TMA, define the manual functionality terms with at least 70% accuracy.	1) Keyboard actions a) M key b) Shift M c) Control E d) Control Shift G e) Toggle F7 2) Mouse terminology a) Click b) Click, hold, drag c) Double-click d) Middle-click e) Right-click f) Shift-click g) Dwell	WBT ILT refresher	C	Matching Interaction
e. Given an operational TMA, explain the difference between Rescheduling and Broadcast with at least 70% accuracy.	1) Define: a) Rescheduling b) Broadcast 2) Give an example of the difference between Rescheduling and Broadcast 3) The difference is that reschedule does not always broadcast. There are two functionalities; one requires	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>two steps, the second is a single option that automatically broadcasts the reschedule</p> <p>4) Review changes prior to broadcast to ensure data is correct and anomalies are not created (delay)</p> <p>5) What triggers reschedule and broadcast in same function</p> <p>6) Manually scheduled aircraft will be intentionally left out of the reschedule and broadcast if not selected</p> <p>7) Know when to reschedule and when not to reschedule</p>			
Development Notes:				
Review Comments:				

Lesson: PGUI vs. TGUI	Topic: Difference Between GUI Components	Time: 15 minutes
Training Outcome C: Upon completion of this lesson, you will be able to access each of the GUI components of the TMA in an operational environment.		

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TGUI environment, access the TGUI components in accordance with the performance criteria checklist.	1) Timelines a) Access the component b) Explain its purpose 2) Graphs a) Access the component b) Explain its purpose 3) Symbols a) Access the component b) Explain its purpose 4) Alert notices a) Access the component b) Explain its purpose (TMA Operator's Manual, pp. 38 – 59)	WBT ILT refresher	P	Performance assessment Simulation
b. Given access to a PGUI environment, access the PGUI components in accordance with the performance criteria checklist.	1) Aircraft Symbols a) Access the component b) Explain its purpose 2) Datablocks a) Access the component b) Explain its purpose 3) Waypoint Symbols a) Access the component	WBT ILT refresher	P	Performance assessment Simulation

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<ul style="list-style-type: none"> b) Explain its purpose 4) PGUI Clock <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 5) PGUI Scratch Pad/Message Area <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 6) Range Rings <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 7) Timelines <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 8) Sequence List <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 9) Pointer <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 10) Function Keys <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 11) Action Keys <ul style="list-style-type: none"> a) Access the component b) Explain its purpose 12) Default Files <ul style="list-style-type: none"> a) Access the component 			

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	b)Explain its purpose (TMA Operator's Manual, pp. 63 - 72)			
Development Notes:				
Review Comments:				

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 15 minutes
Training Outcome D: Upon completion of this lesson, you will be able to explain the TGUI display tags and symbols on the TMA in an operational environment.		

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, discuss how the timeline is formatted with color with at least 70% accuracy.	1) Overview of TMA TGUI Display a) TGUI Display at Startup b) Timeline Overview c) Timeline Elements d) Meter Fix Arcs e) TMA Scheduler f) ETA Aircraft Tags g) STA Aircraft Tags and Freeze Horizons h) Timeline Sides i) On Schedule, Delay, and Advance j) Departure Timelines k) Timesharing l) Load Graphs and Forecast Traffic m) Load Graph Display n) Reading Load Graphs o) Reading Lines	WBT ILT refresher	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>(TMA Operator's Manual, pp. 38 - 55)</p> <p>2) Arrival Timeline</p> <ul style="list-style-type: none"> a) Green tags = ETA b) Yellow tags = unfrozen STA c) Blue tags = frozen STA d) Light blue STA (adapted color) = Open Slot e) White tags = proposed MFX f) Green STA = scheduled departures not yet departed g) Red STA (adapted color) = Locally Departed flight h) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color) i) Plum tags = proposed STA of an internal departure <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p> <p>3) Departure Timeline</p> <ul style="list-style-type: none"> a) Green tags = proposed 			

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>departure time</p> <p>b) Yellow tags = manually scheduled time of departures</p> <p>c) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color)</p> <p>d) Plum tags = proposed STA of an internal departure</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>			
b. Given a TGUI, identify components of aircraft tag data on the list with at least 70% accuracy.	<p>1) Aircraft tag color</p> <p>a) Green</p> <p>b) Yellow</p> <p>c) Blue</p> <p>d) Blue (adaptable color)</p> <p>e) Light Blue (adaptable color)</p> <p>f) Orange (adaptable color)</p> <p>g) White</p> <p>h) Plum</p> <p>i) Red (adaptable color)</p> <p>j) Delay Notation (color-coded value)</p> <p>2) Destination airport symbol (FAST SME would do this. If</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>TMA is only adapted for a single airport within a TRACON group, then the option to turn the symbol on is unavailable)</p> <p>3) Size symbol</p> <ul style="list-style-type: none"> a) Boeing 757 b) Super Heavy c) Heavy d) Large e) Small <p>(TMA Operator's Manual, pp. 40 – 43, Sec. 3.1.3)</p>			
c. Given a TGUI display, discuss how the scheduled time of arrival (STA) side of a timeline can be changed to ripple the list with at least 70% accuracy.	<p>1) Delay value (color change when building up traffic demand)</p> <p>2) Blocked Interval</p> <p>3) Add slots</p> <p>4) Matrix setting (separate these out)</p> <p>5) AMDT</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
d. Given a TGUI display, discuss how the STA side of a timeline can be configured with at least 70% accuracy.	<p>1) Font size</p> <p>2) Freeze Horizon</p> <p>3) Length (15 to 90 minutes)</p> <p>4) Reference (runway threshold, departure airport, arcs, etc.)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	5) Timeline/Gap offset (optional) (TMA Operator's Manual, p. 40, Table 3-1)			
e. Given an operational TMA, explain what a non-controlling TGUI is with at least 70% accuracy.	1) A TGUI that has been configured as a controlling TGUI on the M&C can have its capabilities limited through adaptation, resulting in a partially controlling TGUI. A partially controlling TGUI is primarily used by adjacent facilities to schedule departures. This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS 2) Similarities with TGUI a) Look b) Control of display features c) Status and Schedule Window 3) Differences a) No control of traffic or airspace b) No ability to change operative features controlling traffic c) No aircraft scheduling	WBT ILT refresher	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	features d) No Apply button functionality (TMA Operator's Manual, p. 61, Sec. 3.3)			
f. Given an operational TMA, explain what a partially controlling TGUI is with at least 70% accuracy.	1) Used by adjacent facilities to schedule departures 2) Can be configured to: a) Allow users to swap STAs b) Manually schedule active aircraft that have been adapted for control c) Allow user to switch aircraft between meter/fix arcs that a site has control over 3) User cannot modify settings 4) No Apply button functionality (TMA Operator's Manual, p. 61, Sec. 3.4)	WBT ILT refresher	C	Multiple choice
g. Given an operational TMA, identify the reference point for the timeline with at least 70% accuracy.	1) TGUI a) Timeline Controls b) Timeline Pop-Up Menu	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 4: PGUI Displays

Lesson: PGUI Display	Topic: PGUI Display Options	Time: 20 minutes
Training Outcome E: Upon completion of this lesson, you will be able to identify the PGUI display map and features on the TMA in an operational environment.		

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify a map feature on an operational TMA with at least 70% accuracy.	1) Full Center airspace radar map (default map) 2) Features a) Aircraft symbols b) Aircraft identifiers c) Datablocks d) Waypoint Symbols e) PGUI Clock f) PGUI Scratch Pad/Message Area g) Range Rings h) Timelines i) Sequence List j) Pointer k) Function Keys l) Default Files	WBT ILT refresher	C	Multiple choice
b. Given a PGUI display, identify the Map Options panel on an operational TMA with at least 70%	1) F3 key 2) Full Center airspace radar map (default map)	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.				
c. Given a PGUI display, describe a Datablock with at least 70% accuracy.	1) Datablock associated with a sample aircraft 2) Three lines of data a) Aircraft ID with size designation b) Assigned runway, Assigned altitude, and/or actual altitude c) Ground speed and HOST sector ID	WBT ILT refresher	C	Multiple choice
d. Given a PGUI display, identify the General Setup Options with at least 70% accuracy.	1) Keyboard 2) F2 key	WBT ILT refresher	C	Multiple choice
e. Given a PGUI display, explain range rings with at least 70% accuracy.	1) Definition: help determine aircraft distances from particular points 2) Map Options panel configuration options a) Radii b) Number of rings c) Range ring boxes	WBT ILT refresher	C	Multiple choice
f. Given a PGUI display, identify the Front key with at least 70% accuracy.	1) Rather than viewing both the TGUI and the PGUI on the same monitor by sizing and moving the displays to occupy different halves of the screen,	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>it is possible to bring up both displays on the same monitor, with each filling out the entire screen, but with one display being in front of the other. The back or hidden display can be brought to the front and made visible by toggling the Front key</p> <p>2) Keyboard</p> <p>3) Can access either the PGUI or the TGUI</p>			
Development Notes:				
Review Comments:				

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 45 minutes
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a runway maintenance issue, identify the method to schedule a blocked interval with at least 70% accuracy.	1) Scenario for needed runway maintenance; snowfall requires the need to block a runway for one hour 2) Concept of blocking a runway for a specified time 3) Steps required to insert a blocked interval a) MFX blocked interval b) THD blocked interval 4) Modifying and removing blocked intervals (TMA Operator's Manual, pp. 168 - 175)	WBT ILT refresher	C	Multiple choice
b. Given the F1 Panel, identify the Separation Matrix with at least 70%	1) Configuration and Runway Settings dialog box 2) Set Defaults	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.	a) The Separation Matrix determines the minimum spacing between two types of aircraft approaching a runway threshold b) The Separation Matrix is a square matrix with rows (Ahead) and columns (Behind)			
c. Given an expanded Status and Schedule window, explain when to specify which airport's aircraft to reschedule with at least 70% accuracy.	1) Satellite airport configurations - when change the configuration at the main airport, it changes the configurations at the satellite airport 2) The default setting is set to Off 3) Affects the departure scheduling	WBT ILT refresher	C	Multiple choice
d. Given an expanded Status and Schedule window, identify the Control functions option with at least 70% accuracy.	1) Control button functions is located in the upper left area of the window	WBT ILT refresher	C	Multiple choice
e. Given an expanded Status and Schedule window, identify the	1) Status and Schedule Window 2) Display function button is located in the upper left	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Display function button with at least 70% accuracy.	corner of the window			
f. Given an operational TMA, identify the F4 panel with at least 70% accuracy.	1) F4 key 2) Internal Departures Window	WBT ILT refresher	C	Multiple choice
g. Given an expanded Status and Schedule window, identify the Configuration and Runway Settings option with at least 70% accuracy.	1) Status and Schedule Window 2) Configuration and Runway Settings option is a button on the right side of the window	WBT ILT refresher	C	Multiple choice
h. Given a line of arrivals, identify how a call for release within the freeze horizon populates the TMA schedule with at least 70% accuracy.	1) High probability of a delay because the aircraft is within the freeze horizon 2) Can freeze at an identified time so more delays are not caused 3) Take majority of the delay on the ground instead of the air because it's easier to hold them on the ground then put them in holding parts	WBT ILT refresher	C	Multiple choice
i. Given an operational TMA, identify actions for which a Broadcast is	1) Internal departures scheduling 2) When TMA is updated, delays	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
required with at least 70% accuracy.	on TGUIs will be updated which are different than the delays on controller scopes 3) Need to Broadcast so that revised TMA times are displayed on controller scopes			
j. Given a line of arrivals, explain how to use the F4 panel to schedule internal departures with at least 70% accuracy.	1) F4 key 2) Example is that the aircraft might not be to the freeze horizon yet	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification	Topic: Aircraft Scheduling Data	Time: 10 minutes
Training Outcome H: Upon completion of this lesson, you will be able to explain aircraft scheduling data on a TMA in an operational environment.		

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the impact of assigning runways with at least 70% accuracy.	1) Runway after aircraft proceeds over various fixes 2) Reasons why might change the default runways for an aircraft: a) Runway congestion b) Weather c) Suspended aircraft	WBT ILT refresher	C	Multiple choice
b. Given an operational TMA, explain the impact of allocating runways with at least 70% accuracy.	1) Numbers may be impacted 2) TMA automatically adjusts runways based on manual data inputs; TMA may adjust numbers	WBT ILT refresher	C	Multiple choice
c. Given an operational TMA, identify the Schedule Aircraft pop-up menu with at least 70% accuracy.	1) Pointer on the aircraft tag 2) The order of pop-up menu options can be controlled by adaptation 3) Sub-menu options for an aircraft are enabled or	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	disabled in adaptation (TMA Operator's Manual, Sec. 8.2, p. 216)			
d. Given a Schedule Aircraft pop-up menu, identify the reschedule commands with at least 70% accuracy.	1) How the reschedule commands can be accessed 2) Commands include a) All aircraft b) All and Broadcast to reschedule and update c) ACID and After to reschedule on the STA timeline d) ACID only to reschedule only the aircraft or blocked slot e) All except manually scheduled for STAs that will be locked f) All except manually scheduled and Broadcast for STAs that will be locked g) ACID and After except manually scheduled for STAs that will be locked (TMA Operator's Manual, pp.	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	216 - 217, 219, Secs. 8.2 and 8.2.1)			
e. Given a Schedule Aircraft pop-up menu, identify the Broadcast commands with at least 70% accuracy.	1) Identify how the broadcast commands can be accessed 2) Commands include a) All aircraft b) All and Broadcast to reschedule and update (TMA Operator's Manual, pp. 216 - 217, 220, Secs. 8.2 and 8.2.2)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 7: Additional Features

Lesson: TGUI Features	Topic: TGUI Features	Time: 30 minutes
Training Outcome I: Upon completion of this lesson, you will be able to describe TGUI features on a TMA in an operational environment.		

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, list the Help functions with at least 70% accuracy.	1) Help key 2) A secondary dialog, Help Index and Search, is also available from the main dialog, On-Line Help (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
b. Given a TGUI display, identify the Quick Key commands with at least 70% accuracy.	1) Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key <ul style="list-style-type: none"> a) C b) F c) R d) T e) U f) X g) Z 	WBT ILT refresher	C	Multiple choice

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 266, Sec. 9.1)			
c. Given a TGUI display, identify the Broadcast Status Indicator option with at least 70% accuracy.	1) Control + D	WBT ILT refresher	C	Multiple choice
d. Given a TGUI display, identify the Weather Input Options and System Parameters option with at least 70% accuracy.	1) Control W 2) The Weather Input and System Parameters dialog box appears (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 9: Setup Options

Lesson: PGUI Display Capabilities	Topic: PGUI Display	Time: 20 minutes
Training Outcome J: Upon completion of this lesson, you will be able to describe PGUI display capabilities on a TMA in an operational environment.		

TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain how to access the General Setup Options panel with at least 70% accuracy.	1) F2 key 2) General Setup Options panel appears (TMA Operator's Manual, p. 283, Sec. 11.1.1)	WBT ILT refresher	C	Multiple choice
b. Given an operational TMA, describe the Data Tag Features sub-panel with at least 70% accuracy.	1) Drag capability 2) Aircraft are filtered by arrival airport 3) Aircraft are filtered by display point (TMA Operator's Manual, p. 286, Sec. 11.2)	WBT ILT refresher	C	Multiple choice
c. Given a Data Tag Features sub-panel, describe PGUI features with at least 70% accuracy.	1) F2 key 2) General Setup Options panel appears 3) Data Tag Features in the upper left corner of the panel	WBT ILT refresher	C	Multiple choice

TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 283, Sec. 11.1.1)			
d. Given a General Setup Options panel, describe the Map Display Features sub-panel with at least 70% accuracy.	1) F2 key 2) General Setup Options panel appears 3) Map Display Features in the upper right corner of the panel (TMA Operator's Manual, p. 283, Sec. 11.1.1)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 1 hour
Training Outcome K: Upon completion of this lesson, you will be able to manipulate the TGUI display colored tags and symbols on the TMA in an operational environment.		

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TMA, identify the need to set up a non-controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.3)	ILT	C	Multiple choice
b. Given access to a TMA, identify the need to set up a partially controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.34)	ILT	C	Multiple choice
c. Given a TGUI, use pointer and interactive keys/elements to obtain Air Traffic Control (ATC) operations information in accordance with the	1) Interacting with the TGUI a) Using the Pointer b) Function Keys c) TGUI Quick Action Keys d) TGUI Hot Keys 2) Non-controlling TGUI	ILT SBL	P	Performance assessment

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.	3) Partially Controlling TGUI			
Development Notes:				
Review Comments:				

ILT Module 4: PGUI Displays

Lesson: Timeline Setup Window Manipulation	Topic: Timeline Setup Window	Time: 3 hours
Training Outcome L: Upon completion of this lesson, you will be able to manipulate the features of the PGUI to control the graphical representation of data on the TMA in an operational environment.		

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the Researcher Control panel to change content of a Datablock in accordance with the performance criteria checklist.	1) Press the F11 key to open the Researcher Control panel 2) Select the Datablock Options Panel 3) Manipulate Datablock data options and display configuration	ILT SBL	P	Performance assessment
b. Given a PGUI display, use the Map Options panel to identify the aircraft symbols in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Definitions of four symbols a) Diamond: aircraft following its filed route b) Triangle: aircraft not following its filed route c) Pound sign: HOST radar is coasting the aircraft d) At sign: No radar tracks received by TMA for	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	several radar sweeps			
c. Given a PGUI display, use the Map Options panel to show TMA-defined waypoint names as a group in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Choose TMA waypoint display option Group	ILT SBL	P	Performance assessment
d. Given a PGUI display, use the General Setup Options to show the current universal time in accordance with the performance criteria checklist.	1) Press the F2 key to open the General Setup Options panel 2) Choose PGUI clock display option	ILT SBL	P	Performance assessment
e. Given a PGUI display, use the General Setup Options to show the scratch pad/message area in accordance with the performance criteria checklist.	1) Press the F2 key to open the General Setup Options panel 2) Choose scratch pad display option a) Left scratch pad box: used in TRACON for runway assignment b) Right scratch pad box: used only in development simulations for sector handoff data entry c) Option may not be	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	available at all TRACONS			
f. Given a PGUI display, use the Map Options to manipulate the range rings by entering values in the boxes in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Enter values in the range ring boxes a) Radii value b) Number of rings	ILT SBL	P	Performance assessment
g. Given a PGUI display, change the timeline from the left side to the right side in accordance with the performance criteria checklist.	1) Toggle the backslash key on the key pad (with Num Lock off) 2) Shift the timeline between the left and right sides of the display	ILT SBL	P	Performance assessment
h. Given a PGUI display, show the Sequence List display in accordance with the performance criteria checklist.	1) Open a PGUI display 2) A text-based Sequence List will be shown	ILT SBL	P	Performance assessment
i. Given a PGUI display, use the functions to interact with the display as directed to obtain information for ATC operations in accordance with the performance	1) Open the Sequence List 2) Click on the Call Sign, drops to Analysis (three sub-options) a) Show Route Analysis Route b) Show Flight Plan Route	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
criteria checklist.	c) Show HOST AK Route (current flight plan route that TMA has from HOST)			
j. Given a monitor with a TGUI display and a monitor with a PGUI display, select the option to view both TGUI and PGUI displays on one monitor, in accordance with the performance criteria checklist.	1) To view both GUI displays on one monitor, resize the GUIs using the pointer 2) An available function that is not used everywhere 3) Window Focus tool is used similar to Front Key a) Developed by second level support b) Available to all, based upon Tech Ops knowledge c) This option must be adapted by the facility ATSS	ILT SBL	P	Performance assessment
k. Given one monitor with both a TGUI and a PGUI display, use the pointer to resize a GUI display in accordance with the performance criteria checklist.	1) Open a PGUI and TGUI on one monitor 2) Using the mouse, move the pointer to dwell on a PGUI display corner 3) Resize the display	ILT SBL	P	Performance assessment
l. Given one monitor with both a TGUI and a PGUI display, use the Front key to toggle the TGUI	1) Open a PGUI and TGUI on one monitor 2) Use the Front Key to toggle the displays	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
and PGUI displays on the monitor in accordance with the performance criteria checklist.				
m. Given a PGUI display, use the Map Options panel to customize map views in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Choose the map customization view	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 4 hours
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the acceptance rate using the graph with at least 70% accuracy.	1) TMC creates the TRACON acceptance rate graph 2) Generally, time is on the X-axis and the acceptance rate is on the Y-axis	ILT Small group discussion	C	Multiple choice
b. Given access to an operational TMA, explain what the TRACON acceptance rate can be used for with at least 70% accuracy.	1) TRACON acceptance rate is the maximum number of aircraft per hour that the TRACON will accept under the present conditions 2) Can be used to revise the rate per hour 3) Currently, this is not used regularly in the field, if at all. It is set to Unrestricted Rate (UR)	ILT Small group discussion	C	Multiple choice
c. Given an adapted TMA, identify whether the set	1) Default graphs are set up a) One default is the	ILT	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
up was correct or incorrect after reviewing the graph with at least 70% accuracy.	<p>TRACON acceptance rate graph (demand graph with the number of aircraft at any time)</p> <p>b) Second default is the average delay graph</p> <p>2) Default graph can be compared to the TGUI timeline to determine if it was set up correctly</p> <p>3) Excessive demand may require another tool to support TMA (may have to use ground delay program, ground stop or something else) as the system is not always a standalone tool</p> <p>4) Can use a scan technique to use FSM, which can tell a TMC when to stop metering</p>	Small group discussion		
d. Given a sample airport demand on TMA, identify the average delay graphs for metering in accordance with at least 70% accuracy.	1) Average delay graph display	ILT	C	Multiple choice
e. Given access to an operational TMA,	1) Blocked interval indicates Meter Fixes or Runways	ILT	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
describe what a blocked interval is with at least 70% accuracy.	<ul style="list-style-type: none"> affected 2) Shows interval start and end times on a timeline 3) Referred to as MFX (Meter Fix) and THD (Runway Threshold) 	Small group discussion		
f. Given access to an operational TMA, explain what buffers are with at least 70% accuracy.	<ul style="list-style-type: none"> 1) Types of buffers: <ul style="list-style-type: none"> a) TRACON b) Time c) Matrix d) Departure 	ILT Small group discussion	C	Multiple choice
g. Given access to an operational TMA, explain what RMD is with at least 70% accuracy.	<ul style="list-style-type: none"> 1) Route Maximum Delay: maximum amount of delay that can be absorbed in the TRACON airspace for a given route <ul style="list-style-type: none"> a) Meter fix to Runway - VFR (RMD is 3 minutes) b) Meter fix to Runway - IFR (RMD is 1 minute) c) RMD is hardcoded in adaptation d) TRACON buffer is usually set high 2) The TMA system reviews both RMD and TRACON buffer to calculate the amount of delay to the TRACON and will 	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	choose the lower of the two values 3) RMD affects the amount of delay assigned to the TRACON (that it can absorb)			
h. Given an operational TMA, explain how the buffers and RMD affect scheduling with at least 70% accuracy.	1) Effect TMA scheduling and delay assignments 2) The amount of delay that the TRACON absorbs is the lesser of the buffer and RMD values 3) "Don't set it and forget it"	ILT Small group discussion	C	Multiple choice
i. Given access to an operational TMA, explain when it is appropriate to suspend an aircraft going into the TRACON airspace with at least 70% accuracy.	1) If the timelines are full and there is no place on a runway for an aircraft 2) Examples: a) If an emergency aircraft requests access for a landing and consequently needs to put on the list, then it'll ripple the list. Instead, the TMC in the center can call the TRACON TMC and request that the emergency aircraft be suspended outside of TMA b) Aircraft takes off without	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	permission (IFR pop-up), the runway is full and if the controller puts the aircraft on the list, then it'll ripple the list so the TMC can call and request suspension or ask the aircraft to go into a holding pattern			
j. Given access to an operational TMA, identify when it is appropriate to suspend an aircraft (TMC) with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Controller identifies a problem and contacts a supervisor 2) Supervisor calls TMC 3) Number is unmanageable (most likely) or an emergency (less likely) 4) When it is appropriate to add an aircraft <ol style="list-style-type: none"> a) Emergency aircraft in the air, TMC controller calls TMC TRACON and requests suspension, which is granted b) TMC TRACON realizes that it is not possible and calls TMC controller back and tells him to put the aircraft back on the list 	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	c) Now it is appropriate to add the aircraft back to the list			
k. Given access to an operational TMA, explain what the consequences of suspending an aircraft are with at least 70% accuracy.	1) When an aircraft is suspended, it does not have a spot on the runway or at the meter fix 2) Normally at the meter fix, the aircraft has to be traveling at a given altitude and a given speed 3) If the meter fix is full, then need to coordinate a different altitude at the meter fix or coordinate a new route 4) The consequence of suspending an aircraft is the need for that coordination	ILT Small group discussion	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given airport capacity information, describe	1) When an airport gets too close to capacity, then it is	ILT	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
conditions under which TMA might be initiated TMA with at least 70% accuracy.	time to start using TMA 2) Airport capacity is the runway acceptance rate 3) Some centers will run TMA at 60% capacity, others at 70% or 90% 4) Also depends on how the aircraft are spread out and where delays are - Will turn TMA On or Off based upon the average delays which are determined using graphs	Small group discussion		
b. Given an operational TMA, identify the fleet mix with at least 70% accuracy.	1) TGUI timeline 2) Identify these types of aircraft by their symbols: a) Boeing 757 b) Super Heavy c) Heavy d) Large e) Small	ILT Small group discussion	C	Multiple choice
c. Given an operational TMA, identify various stream classes with at least 70% accuracy.	1) Stream class is the sequencing of similar aircraft into a traffic flow 2) Types a) Future b) EDC c) TBFM	ILT Small group discussion	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 45, Sec. 3.1.6)			
d. Given the EDC tool, explain what a traffic flow is with at least 70% accuracy.	1) Traffic flow describes the aircraft that are departing from or bound for an airport 2) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary (TMA Operator's Manual, p. 388, Sec. C.1)	ILT Small group discussion	C	Multiple choice
e. Given a low average TBFM delay assigned by TMA, identify when it is appropriate to terminate TBFM with at least 70% accuracy.	1) When to terminate TBFM differs from center to center a) Some facilities use TMA all day (never turn it off) b) Other facilities have policy to use it only when it's necessary (the TMC's decision)	ILT Small group discussion	C	Multiple choice
f. Given an operational TMA, identify discrepancies in the list with at least 70% accuracy.	1) Look at delay times 2) If the majority of aircraft have 2 or 3 minute delays and one has a 15-minute delay, the 15-minute delay may be a discrepancy	ILT Small group discussion	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>3) Discrepancies are not necessarily bad or unintentional; for example, a reason for the 15-minute delay may be that the aircraft is working as a designed. ACFT may have been released without CFR internally and/or the ACFT departed at the wrong coordinated (reserved) time; VFR to IFR pop up could result in a comparatively extended delay for the better “good” of the system users</p> <p>4) Note that if times on the TGUI timelines are not the same as what’s on the controller scopes, then you’ll receive a Broadcast Required message</p>			
g. Given TBFM, describe at least two conditions under which TBFM should be stopped and TMA turned off with at least 70% accuracy.	<p>1) No airplanes</p> <p>2) Low demand</p> <p>3) Low average delay</p>	<p>ILT</p> <p>Small group discussion</p>	C	Multiple choice
Development Notes:				

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the end of a TBFM session, explain when it is unnecessary to meter with at least 70% accuracy.	1) TMIs description and list 2) When a meter session ends, need to associate different tools 3) When metering would be initiated or discontinued, recognize when to use ground stop 4) When ending a metering session using TMA, need to know when to start the TMI initiative 5) Don't meter when don't have to do so	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an adapted TMA, explain what the Meter Fix Speed is with at least 70% accuracy.	<ol style="list-style-type: none"> 1) It is a pre-adapted value 2) Aircraft has to cross the meter fix at a given altitude and a given speed (pre-adapted in local facility adaptation) 3) TMA uses this value to set scheduling and ETAs 4) Adapted speeds need to be communicated to all affected TMC and ATCS users of the system 	ILT	C	Multiple choice
b. Given an operational TMA, identify when it is appropriate to move outer arcs with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Outer meter arcs display on a PGUI 2) Outer meter arcs are set to On or Off 3) Setting rarely changes because whatever is in use has already been determined to be most efficient 4) Example of when it would be appropriate to move outer meter arcs is if the airspace changes, deviation scenario – when have an arc issue, can talk to adaption specialist, TMA and FAST – need to be able to talk with a FAST SME 	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given an adapted TMA, identify the meter reference points (MRP) or meter fixes (MFX) and associated center sectors with at least 70% accuracy.	<ol style="list-style-type: none"> 1) MRP – meter fix at TRACON boundary, outer fix (outer arcs), outer outer arc (outer 2 arc), outer outer outer arc (outer 3 arc) <ol style="list-style-type: none"> a) A lot of facilities use outer arcs to set sector boundary delays b) TRACON buffer can be manipulated and leg lengths can be adapted (minutes and seconds). <ol style="list-style-type: none"> i) EX: TRACON gets first 3 minutes of delay c) Centers get all the rest of the delay 2) Meter Fix Arc (Outer Meter Fix Arc): A predetermined arc, usually set at the same distance from Meter Fix as the Outer Fix, for which crossing times are calculated, when an aircraft will not travel over an outer fix 3) Metering fix: A fix along an established route where aircraft metering begins in anticipation of the aircraft 	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>entering terminal airspace. Normally, this fix is established 10,000 feet above airport elevation at a distance from the airport that will facilitate a profile descent to that airport</p> <p>4) Cadre needs to know the meter fixes (all the outer arcs)</p> <p>5) CPCs only need to know MFXs applicable to their area of control</p>			
d. Given an adapted TMA and Display System Replacement (DSR) console, identify whether the Keyboard Video Display Terminal (KVDT) or air traffic workstation TMA command is set to On or Off with at least 70% accuracy.	<p>1) KVDT TMA/AT workstation command</p> <p>2) CP or EPTMAD On/Off setting</p>	ILT	C	Multiple choice
e. Given an operational TMA, explain conditions under which adjacent center metering might be initiated with at least	<p>1) If Sectors 1 – 3 are in ARTCC A and Sector 4 is in ARTCC B, then it will be necessary to perform adjacent center metering</p>	ILT	C	Short answer

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
70% accuracy.	2) If all 4 sectors are in one air traffic control center (ATCC), then adjacent center metering is not needed 3) ACM is a pre-adapted value			
Development Notes:				
Review Comments:				

Lesson: Aircraft Swap	Topic: STA Swap and Continuous Monitoring	Time: 1 hour
Training Outcome N: Upon completion of this lesson, you will be able to perform the steps to swap aircraft on a TMA in an operational environment.		

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, perform the steps required to swap the scheduled times of arrival of two inbound aircraft in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Review the reasons to swap two aircraft 2) Identify the Separation buffer, Time buffer, and RMD <ol style="list-style-type: none"> a) RMD is hardcoded and a TMC cannot change it b) Open the F1 panel to view the Separation buffer and the Time buffer c) Ask the System Administrator to view the RMD 3) Discuss the importance of continuous monitoring 4) Identify when it is appropriate to swap their scheduled times of arrival of aircraft <ol style="list-style-type: none"> a) Enabled in adaptation b) Can swap STAs for active aircraft in control of <p>(TMA Operator's Manual, p.</p>	ILT SBL	P	Performance assessment

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>239, Sec. 8.2.15)</p> <ol style="list-style-type: none"> 5) Show the Schedule Aircraft pop-up menu 6) Bring the cursor to the Swap line 7) Right click and hold the mouse button or left click on Swap to highlight a flight 8) Right click on the aircraft to swap with and open the Schedule Aircraft pop-up menu 9) Right click and hold the mouse button or left click on Swap with 10) The aircrafts are switched if the two flights are in the same superstream class <p>(TMA Operator's Manual, pp. 236 - 238, Sec. 8.2.15)</p>			
Development Notes:				
Review Comments:				

Lesson: Use of the Status and Schedule Window (continued)	Topic: Status and Schedule Window Scheduling parameters	Time: 7 hours
Training Outcome O: Upon completion of this lesson, you will be able to use the Status and Schedule window to configure scheduling parameters on a TMA in an operational environment.		

TLO 20: Given a Status and Schedule window, you will be able to configure the HOST/ERAM connection on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, establish the HOST/En Route Automation Modernization (ERAM) connection in accordance with the performance criteria checklist.	1) Open the Status and Schedule window 2) Choose an airport from the list next to the View Parameters for label 3) Status of the HOST connection is indicated by the message One Way HOST/ERAM connection or Two-Way HOST/ERAM connection (TMA Operator's Manual, pp. 129 - 130, Sec. 7.1.2)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, select the Current Terminal Radar Approach Control Facility (TRACON) Parameters Section for expansion in accordance with the performance criteria checklist.	1) Click on the triangle symbol next to Current TRACON Parameters 2) The Current TRACON Parameters section will expand (TMA Operator's Manual, p. 149)	ILT SBL	P	Performance assessment

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
b. Given an expanded Status and Schedule window, perform the steps to set the future TRACON parameters in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Select the TAR1 button to open the Future TRACON Acceptance Rate Data dialog box 2) Use the arrows to modify the TRACON Acceptance Rate 3) Specify the time at which the change will take place using the arrows next to the Specify UTC Activation Time box 4) Select the Include manually scheduled aircraft check button 5) Click on the Apply button <p>(TMA Operator's Manual, p. 185, Sec. 7.7.1)</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment
c. Given access to an operational TMA, construct the TRACON acceptance rate graph in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Can be used as a tool to display the TRACON acceptance 2) Could tell you when you do or do not need to meter 3) Excessive demand may require another tool to support TMA (may have to use ground delay program, ground stop or something else) as the system is not 	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	always a standalone tool 4) Can use a scan technique to use FSM, which can tell a TMC when to stop metering 5) Demonstrate how to construct the TRACON acceptance rate graph			
Development Notes:				
Review Comments:				

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, select the Current Gate and Meter Fix (MFX) Parameters Section for expansion in accordance with the performance criteria checklist.	1) Click on the triangle symbol next to Current Gate and MFX Parameters 2) The Current Gate and MFX Parameters section will expand (TMA Operator's Manual, p. 152)	ILT SBL	P	Performance assessment
b. Given a Status and Schedule window, select the Gate and MFX parameters in	1) Introduce a scenario which requires a change to Gate and MFX parameters 2) Select the appropriate	ILT SBL	P	Performance assessment

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accordance with the performance criteria checklist.	options for each field within the parameters (TMA Operator's Manual, pp. 152 - 167)			
c. Given an expanded Status and Schedule window, perform the steps to set the future Gate and Meter Fix parameters in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Select Rate 1 to open the Future Gate and MFX Acceptance Rate dialog box 2) Specify the time at which the change will take place in the Specify UTC Activation Time box using the up and down arrows next to the box 3) Select the Include manually scheduled aircraft check button located below the UTC Activation Time box to have aircraft rescheduled when the new limits are applied 4) Click on Apply to make the changes or Close 5) Select Streams1 from the expanded Status and Schedule window to open the Future Stream Class dialog box 6) Enter the values individually for each super stream in each 	ILT SBL	P	Performance assessment

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>Gate</p> <ul style="list-style-type: none"> a) Or set values for super streams using shortcut text that describes the super streams to be modified b) Or accept the default values by clicking on the Set Defaults button <p>7) If multiple arrival airports exist, toggle buttons will be shown to specify which airports' stream class should be set</p> <p>8) Specify the time at which the change will take place with the addition of Activation Time</p> <p>9) Stream Class Miles-in-Trail (MiT) restrictions are set for individual super streams. A super stream represents flows of aircraft that are scheduled together as a single stream, and is defined as a combination of stream classes. Stream classes define which aircraft are always</p>			

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>grouped together based on different criteria (e.g., meter fix, arrival airport, and engine type) and are defined in adaptation. Super streams are defined in adaptation and can also be created dynamically by the user. The dialog provides multiple mapping sets, each one providing different combinations of stream classes into super streams. By applying a specific mapping set, the user can cause different flows of aircraft to be scheduled together</p> <p>(TMA Operator's Manual, pp. 154 - 156, 188, Secs. 7.4.2 and 7.8.2)</p>			
Development Notes:				
Review Comments:				

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, use the Control function options to choose Quickset in accordance with the performance criteria checklist.	1) Enter Control K 2) Open Quickset dialog (TMA Operator's Manual, p. 58, Sec. 3.2.4)	SBL	P	Performance criteria checklist
b. Given an expanded Status and Schedule window, choose to turn on TBFM times on the MDM (i.e., controller's radar scope or DSR console) in accordance with the performance criteria checklist.	1) Single button click for this to display on the controller's scope 2) Check or uncheck a box 3) This is the last step in the process of set up	ILT SBL	P	Performance assessment
c. Given an expanded Status and Schedule window, use the Control function to choose Freeze Horizons in accordance with the performance criteria checklist.	1) Select Freeze Horizons from the Control pull-down menu 2) The Freeze Horizons dialog box appears (TMA Operator's Manual, pp. 194 - 195, Sec. 7.9.4)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 25: Given an operational TMA, you will be able to use the F4 Panel to schedule departures on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, use the F4 Panel to schedule departures in accordance with the performance criteria checklist.	1) Press F4 2) Select an unscheduled flight 3) Select the Schedule button in the upper-half of the Internal Departures window to bring up the dialog box for scheduling highlighted aircraft 4) The Schedule a Departure dialog box will open with these six parts a) Arrival airport and flight ID b) Flight plan c) Original Flight Estimate d) View/Change Scheduled Route e) Compute STA and Suggest Departure Time f) Buttons to freeze times, accept times, and close the window (TMA Operator's Manual, pp. 258 - 259, Sec. 8.8)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 26: Given an operational TMA, you will be able to reschedule an aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, use the Display function button to access the pull-down menu of options in accordance with the performance criteria checklist.	1) Select Display from the Status and Schedule window 2) A pull-down menu appears 3) Press the F1 key (TMA Operator's Manual, p. 211, Sec. 7.10)	ILT SBL	P	Performance assessment
b. Given a Configuration and Runway Settings dialog box, choose a configuration to use the Configurations method in accordance with the performance criteria checklist.	1) Select Configurations 2) A pull-down menu appears 3) Click on the desired configuration (TMA Operator's Manual, pp. 133 - 134, Sec. 7.2.1.1)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a timeline reference point type, perform the steps required to set up a	1) To block an interval on a meter fix timeline: a) Dwell the pointer in the center of the MFX timeline	ILT SBL	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
blocked interval lifecycle (from creation to deletion) in accordance with the performance criteria checklist.	<p>at one end of the interval</p> <p>b) Middle click and hold</p> <p>c) Enter Control and hold</p> <p>d) While holding both buttons, move the pointer to the other end of the interval to be blocked</p> <p>e) Release the middle click</p> <p>f) Release Control</p> <p>g) Note: there are two alternative ways to create blocked intervals</p> <p>(TMA Operator's Manual, p. 169, Sec. 7.5.1)</p>			
b. Given an operational TMA, choose to gather all relevant information to provide to the person who can make adaptation changes in accordance with the performance criteria checklist.	<p>1) Display route to observe issue/identify anomaly with the nominal route</p> <p>a) Example: choice could be to shorten or lengthen a route, but either way it will increase another controller's workload and affect accuracy of TMA</p> <p>2) Gather supporting data to provide to Cadre</p> <p>3) Cadre analyzes the data</p> <p>4) If unable to resolve, contact</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>the system administrator</p> <p>5) The main point is to not give conflicting information to the system administrator</p> <p>6) Show the nominal route which will be modified as required</p>			
c. Given an expanded Status and Schedule window, revise future parameters in accordance with the performance criteria checklist.	<p>1) The Status and Schedule Window opens to show future scheduled changes</p> <p>a) While there are buttons to work with two future configurations, at present the system can only handle a single future configuration</p> <p>b) Future configuration changeover times are indicated on the timeline, in addition to in the Status and Schedule window</p> <p>2) After this window expands, the user has the opportunity to input or revise future parameters</p> <p>3) The three major operations, which are called from the top section, are:</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	a) Configuration b) Airport Acceptance Rate (AAR) c) Separation Matrix			
d. Given access to an operational TMA, administer settings in accordance with the performance criteria checklist.	1) Most critical component of setting up the arrival rate 2) TMC sets up Runway Matrix settings and TRACON settings 3) Need to identify the buttonology 4) Works in concert with the TRACON buffer	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation	Topic: Aircraft Scheduling Window	Time: 3 hours
Training Outcome P: Upon completion of this lesson, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on a TMA in an operational environment.		

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI, manipulate the Aircraft Scheduling window to broadcast aircraft scheduling changes in accordance with the performance criteria checklist.	1) Make proper notification that a broadcast is going to occur a) Broadcast required message 2) Demonstrate how to broadcast a) Broadcast	ILT SBL	P	Performance assessment
b. Given a Status and Schedule window, determine the number of aircraft that crossed a meter fix in accordance with the performance criteria checklist.	1) This is a display function for TMC 2) One option is to left click on one aircraft and drag it to the other airplane a) All airplanes in between will be highlighted b) A dialog box will display the number 3) Another option is to select	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	the F5 key a) A Traffic Count window will open			
c. Given an operational TMA, display the meter list in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) This is an ATCS function 2) DSR console function (run by HOST or being replaced by ERAM) 3) To turn on/off meter lists from display keys on the DC view, toggle TMA LIST on the Display Filter Selection Panel on the DSR MDM 4) Toggle the On/Off DSR buttons on the window display TMA Meter Lists allow the ATCS to understand the sequence of the arrival flow through their sector, however when multiple airports are being metered the lists can take up considerable space on the MDM 5) To reduce the size of the Meter Lists, a new feature in the TBFM software called Meter List Alternate 	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	Sequence (MLAS) can be adapted to change the parameter at which aircraft will populate or drop from a sector Meter List (Adapted at ZOB – need SME input)			
d. Given a Meter List display, identify what is on the scope in accordance with the performance criteria checklist.	1) This is an ATCS function 2) Turn the scope on 3) Identify which aircraft are being metered 4) Find the ETA, STA, DCT 5) CPC would need to determine if the list is out of order by looking at the list	ILT SBL	P	Performance assessment
e. Given a Meter List display, manipulate the list to order the aircraft in accordance with the performance criteria checklist.	1) One way is to swap aircraft A and aircraft B a) Type “SW” b) Hit spacebar c) Type computer ID (CID) or aircraft ID (AID) d) Hit spacebar e) Type computer ID or aircraft ID f) Hit Enter g) The two STAs will change 2) Another option is to resequence, which	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>incorporates the same swap steps after typing "SQ" but for three to five aircraft</p> <p>3) Swaps or resequencing can only occur if the aircraft are in the controller's sector and the controller has control of them all</p>			
f. Given a runway configuration, to reassign an aircraft to a different runway in accordance with the performance criteria checklist.	<p>1) This is an TMC only</p> <p>2) If you assign an aircraft to a different runway, for that aircraft only, it receives all new STAs (changes all delay times on CPC scopes)</p> <p>3) To manually schedule, which is not encouraged, drag an aircraft to a runway, then you'll see a green or red bar appear on the timeline</p> <p>a) Green means that the re-assignment meets separation standards</p> <p>b) Red means that re-assignment can be performed, but it does not meet the separation standards</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	4) The preferred option is to Right click on aircraft a) Choose "Assign Runway" from the drop-down box b) Choose the runway assignment from the drop-down box c) Once the runway assignment is chosen, the re-assignment will be processed			
Development Notes:				
Review Comments:				

ILT Module 7: Additional Features

Lesson: TGUI Features Data Production	Topic: TGUI Features Data	Time: 2 hours
Training Outcome Q: Upon completion of this lesson, you will be able to produce data using TGUI features on a TMA in an operational environment.		

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, utilize a Quick Key command to complete an action in accordance with the performance criteria checklist.	1) Press the Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key 3) Display airport data by pressing down Control + A 4) Obtain a traffic count by selecting F5 5) Close window by pressing down Alt + F4 (TMA Operator's Manual, p. 266, Sec. 9.1)	SBL	P	Performance assessment
b. Given an operational TMA, access the Broadcast Status Indicator dialog box in accordance with the	1) Enter Control D (TMA Operator's Manual, p. 272, Sec. 9.3)	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.				
c. Given a Weather Input Options and System Parameters dialog box, change system parameters in accordance with the performance criteria checklist.	1) Enter Control W 2) Toggle the On/Off buttons next to Reschedule for MP change a) Controls whether TMA reschedules aircraft when flights are switched between specific meter fixes b) Allows change of flights to nearby streams without changing frozen STAs (TMA Operator's Manual, p. 271, Sec. 9.2)	SBL	P	Performance assessment
d. Given a need to send a general information message from TMA, perform the steps necessary to send it in accordance with performance criteria checklist.	1) Message to HOST/ERAM dialog provides the capability for the operator to send HOST/ERAM messages (e.g., general information, interface test) 2) Access the Control pull-down menu 3) Choose the Send option (TMA Operator's Manual, Sec.	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	7.9.10)			
Development Notes:				
Review Comments:				

ILT Module 8: PGUI Map Display Options

Lesson: PGUI Map Options Identification	Topic: PGUI Map Options	Time: 30 minutes
Training Outcome R: Upon completion of this lesson, you will be able to identify the options displayed on the PGUI map in an operational environment.		

TLO 30: Given a PGUI display, you will be able to identify the options displayed on the PGUI map with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the F3 Key with at least 70% accuracy.	1) Review the keyboard 2) F3 key (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
b. Given a PGUI display, identify an option displayed on the PGUI map with at least 70% accuracy.	1) F3 key 2) Map Options panel 3) Select Map button (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: PGUI Map Options Modification	Topic: TGUI Map Options (continued)	Time: 1 hour
Training Outcome S: Upon completion of this lesson, you will be able to modify the options displayed on the PGUI map within the TMA in an operational environment.		

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the F3 Key to view a Center's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All Center from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
b. Given a PGUI display, use the F3 Key to view a TRACON's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All TRACON from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a PGUI display, use the F3 Key to view selected gate airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose SOUTH-GATE from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
d. Given a PGUI display, use the F3 Key to suppress the map display in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose No Map from the list of available PGUI map options 5) Suppressing the map is useful to clearly see the sequence list or other features without the map displays interfering (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 9: Setup Options

Lesson: PGUI Display Creation	Topic: PGUI Display	Time: 2 hours
Training Outcome T: Upon completion of this lesson, you will be able to create a PGUI display with customized dynamic elements on a TMA in an operational environment.		

TLO 32: Given a General Setup Options panel, you will be able to create a PGUI display with customized dynamic elements on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a General Setup Options panel, create a PGUI display using elements in accordance with the performance criteria checklist.	1) Press the F2 key 2) Choose the buttons and slide bar options (TMA Operator's Manual, p. 283, Sec. 11.1.1)	ILT SBL The performance criteria checklist will include providing the learner with a screen shot of a PGUI and ask them to replicate the general positioning of the components shown in the screen shot	P	Performance assessment
b. Given a Map Display	1) Press the F2 key	ILT	P	Performance

TLO 32: Given a General Setup Options panel, you will be able to create a PGUI display with customized dynamic elements on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Features sub-panel, choose the PGUI capabilities in accordance with the performance criteria checklist.	2) Five capabilities a) Scratch Pad Available b) Zoom Available c) PGUI Clock d) VFR Aircraft e) TRACON Datablocks shown in Center (TMA Operator's Manual, pp. 295 - 298, Sec. 11.3)	SBL		nce assessme nt
Development Notes:				
Review Comments:				

ILT Module 10: Map Options

Lesson: PGUI Map Options	Topic: F3 Key Options	Time: 30 minutes
Training Outcome U: Upon completion of this lesson, you will be able to recall the PGUI map options on a TMA in an operational environment.		

TLO 33: Given a Map Options (F3) panel, you will be able to recall the PGUI map options on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map Options (F3) panel, recall PGUI map options on an operational TMA with at least 70% accuracy.	1) Map Options <ul style="list-style-type: none"> a) Brightness Controls b) Range Rings c) Fixes d) Routes e) Boundaries f) Sector Data (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: PGUI Map Manipulation	Topic: PGUI Map Features and Files	Time: 1 hour
Training Outcome V: Upon completion of this lesson, you will be able to manipulate the PGUI map features and display on a TMA in an operational environment.		

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map View Options (F3) panel, select PGUI files in accordance with the performance criteria checklist.	1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a file name from the list and click the Apply button (TMA Operator's Manual, p. 300, Sec. 12.1)	SBL	P	Performance assessment
b. Given a Map Option (F3) panel, select PGUI features in accordance with the performance criteria checklist.	1) Adjust these two Brightness Controls features: a) Datablock b) Sequence List 2) Adjust the Initial Radius for the Range Rings feature 3) Select the Meter Points box as the Fixes figure 4) Select the Preferred Departure Routes for the Routes feature (TMA Operator's Manual, p. 277, Sec. 10.1)	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a Map Options (F3) panel, manipulate the map perspective on the PGUI in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a filename from the list 4) Click the Apply button 5) Click on the Center Zoom File Save button 6) Select a filename from the list 7) Click the Save button 8) Click on the TMA button next to Set View from Sector Menu 9) Select a pre-defined PGUI sector map from a drop-down list 10) Click on the Map Options panel OK button 11) Click on the Set Map Range button 12) Hold the mouse button down, scroll down the list, select the desired range and release the mouse button 13) Click on the Map Options panel OK button 14) Click on the Set Map Range Full Map button 	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	15) Click on the Map Options panel OK button (TMA Operator's Manual, pp. 300 - 305, Sec. 12.1)			
Development Notes:				
Review Comments:				

ILT Module 12: Sequence Options

Lesson: Sequencing and Its Effects	Topic: Sequence List	Time: 20 minutes
Training Outcome X: Upon completion of this lesson, you will be able to identify the sequence lists on a TMA in an operational environment.		

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, define the three Sequence List categories with at least 70% accuracy.	1) Sequence List Traffic: Identifies aircraft included in the Sequence List 2) Sequence List Data: Identifies data displayed in the Sequence List 3) Sequence List Format: Identifies how the Sequence List is displayed (i.e., what order the aircraft are in, how precise the times are, in a compact or spread-out format) (TMA Operator's Manual, pp. 321 - 333, Sec. 14.5)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 13: PGUI Timeline Options

Lesson: Definition of Timeline Options Panel	Topic: Timeline Options	Time: 30 minutes
Training Outcome Z: Upon completion of this lesson, you will be able to describe the Timeline Options panel parts on a TMA in an operational environment.		

TLO 38: Given a PGUI display, you will be able to define the Timeline Options panel parts on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Timeline Options panel with at least 70% accuracy.	1) Individual display options can be accessed via the F10 key: Timeline Options Panel 2) User can choose whether to display timelines, whether to stack timelines, and how many timelines to display	ILT	C	Multiple choice
b. Given a Timeline Options panel, describe the four distinct parts of the panel with at least 70% accuracy.	1) The four distinct parts are: a) Timeline defaults files b) Number of timelines c) Set up options for each side of each timeline d) Color options	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Creation of an PGUI Timeline Display Using the Timeline Options Panel	Topic: PGUI Timeline Options	Time: 1 hour 30 minutes
Training Outcome AA: Upon completion of this lesson, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on a TMA in an operational environment.		

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI timeline display, discuss the Quick Copy operations with at least 70% accuracy.	1) Ability to streamline the development of multiple timelines based on one setup 2) Have the ability to copy: a) An entire timeline b) An entire timeline side c) A single option on a timeline or timeline side (TMA Operator's Manual, pp. 349 - 357, Sec. 15.5)	ILT SBL	C	Multiple choice
b. Given a Timeline Options panel, explain options to change the aircraft tag color with at least 70% accuracy.	1) Ability to change the color appearance of the following: a) ETA b) STA Frozen c) STA Unfrozen (TMA Operator's Manual, p. 357, Sec. 15.6)	ILT SBL	C	Multiple choice
c. Given a Timeline Options (F10) panel, access the	1) Press the F10 key 2) Click on the Open button	ILT	P	Performance

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
PGUI files in accordance with the performance criteria checklist.	3) Select a default file from the Timeline File Selection list 4) Click Apply 5) Press the F10 key 6) Click on the Save button 7) Select a default file from the Save Timeline File list 8) Click OK (TMA Operator's Manual, pp. 336 - 338, Sec. 15.2.1 - 15.2.2)	SBL		assessment
d. Given a PGUI display, choose the timeline appearance options in accordance with the performance criteria checklist.	1) Select the Display Timelines checkbox 2) Select the Stack Timelines checkbox 3) Select the Number of Timelines option 4) For each timeline, the following options can be set: a) Length b) Gap c) Reference 5) Four options can be set separately for the left and right side of each timeline: a) Arrival Type b) Aircraft Size c) Meter Fixes	ILT SBL	P	Performance assessment

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	d) Runways (TMA Operator's Manual, pp. 338 - 349, Secs. 15.3 - 15.4)			
Development Notes:				
Review Comments:				

ILT Module 14: Control Panel

Lesson: Datablock Options Capabilities	Topic: Researcher Control Panel	Time: 1 hour
Training Outcome BB: Upon completion of this lesson, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on a TMA in an operational environment.		

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Researcher Control Panel with at least 70% accuracy.	1) F11 key (TMA Operator's Manual, p. 359, Sec. 16.1)	ILT	C	Multiple choice
b. Given a PGUI display, describe the Researcher Control Panel with at	1) Provides configuration of the data elements displayed in an aircraft's Datablock and	ILT	C	Multiple choice

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
least 70% accuracy.	customizes the Color of the various PGUI elements (TMA Operator's Manual, p. 359, Sec. 16.1)			
Development Notes:				
Review Comments:				

Lesson: Manipulation of an Aircraft's Datablock Element Display and Color Scheme	Topic: PGUI Color Files and Capabilities	Time: 1 hour
Training Outcome CC: Upon completion of this lesson, you will be able to manipulate an aircraft's Datablock element display and color scheme on a TMA in an operational environment.		

TLO 41: Given a PGUI display, you will be able to manipulate an aircraft's Datablock element display and color scheme on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Datablock Options Panel, explain the PGUI capabilities with at least 70% accuracy.	1) Explain how to access the Datablock 2) How to make changes 3) How to save changes	ILT SBL	C	Multiple choice
b. Given a Researcher Control Panel, select PGUI color files in accordance with the performance criteria checklist.	1) Open and save buttons 2) Load Defaults Colors button (TMA Operator's Manual, p. 363, Sec. 16.3)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions	Topic: Traffic Management Functions	Time: 3 hours
Training Outcome DD: Upon completion of this lesson, you will be able to identify the PGUI traffic management functions on a TMA in an operational environment.		

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify separation data between two points in accordance with at least 70% accuracy.	1) How separation data is accessed: a) Dwell on the first object (aircraft) b) Press the space bar c) Dwell on the second object (airport) d) Press the space bar e) View the separation data in the message area (TMA Operator's Manual, p. 365, Sec. 17.3)	ILT	C	Multiple choice
b. Given access to an operational TMA, label all the display information options with at least 70% accuracy.	1) Include buttonology on how to develop and manipulate Datablocks on a PGUI 2) How to build the graphical display of the Datablock	ILT	C	Multiple choice
c. Given access to an	1) Explain what is displayed in	ILT	C	Multiple

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
operational TMA, explain the PGUI Datablock display information with at least 70% accuracy.	the PGUI Datablock			choice
d. Given the interface control document, identify when it is appropriate to change settings within the parameters of the interface control document at least 70% accuracy.	1) Interface control document 2) Settings for which Cadre can work with FAST to utilize 3) Not software; be able to have an educated discussion with FAST team 4) Problem or initial adaptation	ILT	C	Multiple choice
e. Given an operational TMA, identify when it is appropriate to suspend aircraft with at least 70% accuracy.	1) Suspending an aircraft removes that aircraft from normal arrival traffic scheduling calculations 2) To temporarily increase acceptance rate without adjusting metering rates (EX: a few unexpected visual approaches outside of the normal flow) 3) EX: When a brief period of unexpected VAPS have occurred to a different runway (aircraft leaving the main metered flow), it may be	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>appropriate to suspend these aircraft since they are no longer taking up space on the metered flow. If these aircraft have already arrived, suspending a few aircraft on the metered flow may be appropriate</p> <p>4) On the PGUI a suspended aircraft is highlighted for a brief amount of time then just looks like a regular aircraft</p> <p>(TMA Operator's Manual, p. 366, Sec. 17.4)</p>			
f. Given a STAR route, explain why it is converted into TMA routes with at least 70% accuracy.	<p>1) STAR is a pre-planned IFR air traffic control arrival procedures published in graphic and/or text form</p> <p>2) STARS provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area</p> <p>3) In calculating ETAs, TMA analyzes the possible routes and trajectories that an aircraft is likely to take based</p>	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>on factors such as assigned meter fix, destination airport, airport configuration, engine type and approach segment, and the aircraft's current position, altitude, heading, and speed</p> <p>4) STAR routes must be configured in TMA in order for the system to calculate ETAs, just like all other routes and airport configurations</p> <p>(TMA Operator's Manual, Sec. 1.3)</p>			
g. Given an operational TMA, identify relevant situational information with at least 70% accuracy.	1) TMA information needs to be paired down to determine what information you need to run a particular flow	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Use of the PGUI Traffic Management Functions	Topic: Functional Keys and Displays	Time: 3 hours
Training Outcome EE: Upon completion of this lesson, you will be able to utilize the PGUI traffic management functions on a TMA in an operational environment.		

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI, use the pointer to display a limited aircraft data message in accordance with the performance criteria checklist.	1) Dwell the pointer on the aircraft symbol 2) If the Sequence List is displayed, dwell the pointer on the line corresponding to that aircraft (TMA Operator's Manual, p. 364, Sec. 17.1)	SBL	P	Performance assessment
b. Given a PGUI display, choose to temporarily suspend an aircraft from normal arrival traffic scheduling calculations in accordance with the performance criteria checklist.	1) Dwell on the aircraft symbol or Datablock 2) Press "x" 3) A scheduling suspension notice will appear 4) The STA for the aircraft in the Sequence List will change to "xxxx" and the ETA will be enclosed within square brackets (TMA Operator's Manual, p. 366, Sec. 17.4)	ILT SBL	P	Performance assessment

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given access to an operational TMA, choose to display different views or lists in accordance with the performance criteria checklist.	1) Bring up maps 2) Bring up sequence lists	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, administer the Datablock completely in accordance with the performance criteria checklist.	1) Provide a scenario to build out the Datablock using a checklist 2) Learners should be able to make decisions on how to build the graphical display of the Datablock. 3) Explain that this is often driven by preference (TMA Operator's Manual, pp. 359 - 362, Sec. 16.2)	ILT SBL	P	Performance assessment
b. Given access to an operational TMA,	1) Select the filename of the Datablock file last loaded	ILT	P	Performance

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
develop the Datablock in accordance with the performance criteria checklist.	2) Call up the Datablock File Selection panel by selecting the Open button 3) Call up the Save Datablock File panel by selecting the SAVE button (TMA Operator's Manual, p. 359, Sec. 16.2)	SBL		assessment
c. Given access to an operational TMA, construct the Datablock graphical display in accordance with the performance criteria checklist.	1) Select the Datablock Type 2) Select the Datablock Line Number 3) Select the Compress Line 4) Select the Field 5) Assign multiple items to be timeshared in a single Field 6) Change the Datablock Options drop-down box 7) Enable/Disable (On/Off) the data selected for the specified line 8) Open the APPEND ITEMS Panel by pressing the Append Items button 9) Select a Seconds value for timesharing 10) Select Item Mode 11) Select the Color Options	ILT SBL	P	Performance assessment

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	using the drop down menu (TMA Operator's Manual, pp. 359 - 362, Sec. 16.2)			
Development Notes:				
Review Comments:				

ILT Module 16: En Route Departure Capability

Lesson: Traffic Flows	Topic: Ground Delay Program and EDCT	Time: 1 hour
Training Outcome FF: Upon completion of this lesson, you will be able to describe traffic flows in an operational environment.		

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define a ground delay program with at least 70% accuracy.	1) Why double delays occur 2) Impact of circumventing double delays (what happens if freeze early in an attempt to preserve list) a) What does it look like when you have a ground delay program going on? b) What is the impact of manipulating the ground delay programs?	ILT	C	Multiple choice
b. Given access to an operational TMA, describe what the EDCT characters look like with at least 70% accuracy.	1) EDC is an enhancement to TMA deployed at ARTCCs where an en route departure and metering functionality is required 2) EDC displays a) TGUI b) PGUI c) Single GUI configuration	ILT	C	Multiple choice

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 389 - 390, Secs. C.1.1 - C.2.2.1)			
Development Notes:				
Review Comments:				

Lesson: Management of Traffic Flows Using the EDC Tool	Topic: EDC Tool	Time: 2 hours
Training Outcome GG: Upon completion of this lesson, you will be able to use the EDC tool to manage traffic flows in an operational environment.		

TLO 46: Given the EDC tool, you will be able to manage traffic flows in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the EDC tool, define the EDC tool with at least 70% accuracy.	1) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary 2) Traffic flow describes the aircraft that are departing from or bound for an airport (TMA Operator's Manual, p. 388, Sec. C.1)	ILT	C	Multiple choice

TLO 46: Given the EDC tool, you will be able to manage traffic flows in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
b. Given a Multiple Super Stream De-confliction (MSSD) group, utilize EDC to set en route mile-in-trail restrictions in accordance with the performance criteria checklist.	1) Select View on the Stream Classes for Time Based Metering dialog 2) The View Super Stream Groups dialog appears 3) Enter a new value in the spin box 4) Press the Apply button (TMA Operator's Manual, p. 402, Sec. C.2.3.9)	ILT SBL	P	Performance assessment
c. Given the EDC tool, manage en route traffic flows exiting an ARTCC to an adjacent ARTCC in accordance with the performance criteria checklist.	1) Demonstrate how to set up a blank EDC to meter outbound flows	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change	Topic: En Route Anomalies and Differences	Time: 2 hours
Training Outcome HH: Upon completion of this lesson, you will be able to solve problems on an operational TMA.		

TLO 47: Given a problem on an operational TMA, you will be able to identify the best method to communicate the issue the designated point of contact with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an arrival and departure list, identify an anomaly with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Anomaly or just new to the user <ol style="list-style-type: none"> a) Example - visual depiction of fleet mix appears normal except for a large gap where demand exists 2) Research - take a screen shot, talk with colleagues, find a FAST person or test it in the Support String 3) Example - Aircraft times are off. One ac is 15 min off. In the event of a large gap, you can; swap ac, indicator is a break in uniform visual 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 48: Given access to an operational TMA, you will be able to discuss when it is appropriate to initiate an adaptation change with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, explain why routes have different configurations with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Routes pre-configured within TRACON adaptation have to be as accurate as possible; if routes are inaccurate, they will negatively impact the schedule 2) Based on how each facility has set up TMA 3) Internal satellites affect how airports input flows into existing streams 4) Routes adapted inside of a TRACON should be adapted to real-time operation. Incorrect routes will have negative affect on schedule 5) Most efficient route of flights is based on restrictions (noise abatement and route planning) 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA with a technical problem, describe what can be done at a national level with at least 70% accuracy.	1) What can be done at the local level 2) What can be done externally; reaching to other towers and the Help Desk	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
b. Given access to an operational TMA, explain the difference between a red x on the scope and a red x on TMA on a scope with at least 70% accuracy.	1) Red X on a scope means a controller is not receiving HOST data 2) Red X on TMA means TMA is not receiving HOST data and cannot be used to meter	ILT	C	Multiple choice
c. Given an operational TMA, identify the Print Screen button with at least 70% accuracy.	1) TGUI hot keys on the keyboard 2) How to use print screen (TMA Operator's Manual, p. 58, Sec. 3.2.4)	ILT	C	Multiple choice
d. Given an operational TMA, define Amount of Delay Taken (AMDT) with at least 70% accuracy.	1) AMDT definition 2) How to access AMDT (TMA Operator's Manual, p. 165, Sec. 7.4.4)	ILT	C	Multiple choice
e. Given an operational TMA, define Single Gate Free Flow (SGFF) with at least 70% accuracy.	1) The third of three Gate and MFX parameters 2) Located in the Status and Schedule window (TMA Operator's Manual, p. 159, Sec. 7.4.3.1)	ILT	C	Multiple choice
f. Given an operational TMA, define Free Flow Parameter (FFP) with at	1) The Free Flow Parameter dialogue allows for the minimum delay that a SGFF	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
least 70% accuracy.	<p>aircraft must have to qualify for scheduling preference over a non-SGFF aircraft</p> <p>2) The value is expressed as a percentage, and applied to each aircraft's TRACON buffer</p> <p>a) 0% leaves no gaps in the runway schedule – the SGFF aircraft will receive preference when it schedules behind the aircraft directly ahead of it on the runway at the minimum separation that will meet the runway constraints</p> <p>b) At 70%, the SGFF aircraft will receive preference when its total runway delay equals its TRACON buffer</p> <p>(TMA Operator's Manual, p. 165, Sec. 7.4.4)</p>			
Development Notes:				
Review Comments:				

Lesson: Communicating Anomalies	Topic: Options and Processes to Communicate Anomalies	Time: 1 hour
Training Outcome II: Upon completion of this lesson, you will be able to perform the steps required to communicate anomalies on an operational TMA.		

TLO 50: Given an anomaly on an operational TMA, you will be able to perform the steps required to communicate the issue to the designated point of contact in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, summarize what information needs to be communicated to CPCs with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Details to be relayed to the Supervisor 2) Supervisor hands the information to the TMC 3) TMC would either resolve the issue or escalate it to the Cadre <ol style="list-style-type: none"> a) If resolved, he reports actions taken to the Supervisor and any actions the controller needs to take b) If unresolved inform the Supervisor the issue is being escalated and what action the CPC should take 4) The Cadre would inform the CPC's Supervisor on action taken to resolve the issue 	ILT	C	Multiple choice
b. Given the identification of an anomaly, describe	<ol style="list-style-type: none"> 1) Data regarding the anomaly is collected 	ILT	C	Multiple choice

TLO 50: Given an anomaly on an operational TMA, you will be able to perform the steps required to communicate the issue to the designated point of contact in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
the process to file tickets with at least 70% accuracy.	2) Data is giving to the Cadre 3) Cadre then enters a site report which is sent to the technician			
c. Given the identification of an anomaly, use the Print Screen button to capture a screen shot in accordance with the performance criteria checklist.	1) Print the current screen a) Place cursor in desired display b) Press Print Screen and left click mouse 2) Send GUI screen shot and description for analysis to WJHTC a) Place cursor in desired display b) Press Shift + Print Screen and left click mouse (TMA Operator's Manual, p. 70, Sec. 4.2.2)	ILT	p	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 18: Procedures

Lesson: Procedures	Topic: TMA Procedures	Time: 2 hours 30 minutes
Training Outcome JJ: To be determined upon national TMA procedure acceptance.		

TLO 51: To be determined upon national TMA procedure acceptance.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. To be determined upon national TMA procedure acceptance.	1) To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.
Development Notes:				
Review Comments:				

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Course Title: Traffic Management Advisor (TMA) for TMC En Route

Course Goal(s): The goals of this course are for the learner to be able to use TMA components to safely and efficiently manage metering and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to their job duties.

WBT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 35 minutes
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used f) Hardware and software versions	WBT ILT refresher	C	Multiple choice

Development Notes:

Review Comments:

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	WBT ILT refresher	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	WBT ILT refresher	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary	WBT ILT refresher	C	Multiple choice
Development Notes:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, discuss how an aircraft route change affects the system with at least 70% accuracy.	1) Explain how changing an aircraft route affects nearby sectors and the NAS 2) Highlight how decisions and actions impact other airspaces (encourage “a cooperative environment through enhanced global situational awareness”) 3) Give an example of how an arrival over an inbound fix, such as an emergency aircraft, becomes a No Fix and how that affects the TMA schedule	WBT ILT refresher	C	Multiple choice
b. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data	WBT ILT refresher	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>display</p> <ul style="list-style-type: none"> i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90 c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA) d) Scheduling factors e) Scheduling constraints <p>2) Explain the efficiency gained by using TMA</p>			

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Development Notes:				
Review Comments:				

WBT Module 2: GUI Features

Lesson: TMA GUI Features	Topic: GUI Features and Functionality	Time: 20 minutes
Training Outcome B: Upon completion of this lesson, you will be able to explain each of the Graphical User Interface (GUI) components of the TMA in an operational environment.		

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify a main component of the TMA in accordance with at least 70% accuracy.	1) TGUI 2) PGUI (TMA Operator's Manual, pp. 26 - 28)	WBT ILT refresher	C	Multiple choice
b. Given access to a TGUI environment, describe the TGUI features with at least 70% accuracy.	1) Features overview (TMA Operator's Manual, pp. 26 - 27)	WBT ILT refresher	C	Multiple choice
c. Given a review of the TMA GUI features, identify the features with at least 70% accuracy.	1) Application Window 2) Active Window 3) Dialog Box 4) Window Tiling 5) Minimizing a window 6) Optional Window Components/Menu Bar 7) Push Buttons 8) Check Buttons 9) Choice Buttons 10) Radio Buttons	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	11) Spin Buttons 12) Display Buttons 13) Slider Bar 14) Text Entry Fields			
d. Given access to an operational TMA, define the manual functionality terms with at least 70% accuracy.	1) Keyboard actions a) M key b) Shift M c) Control E d) Control Shift G e) Toggle F7 2) Mouse terminology a) Click b) Click, hold, drag c) Double-click d) Middle-click e) Right-click f) Shift-click g) Dwell	WBT ILT refresher	C	Matching Interaction
e. Given an operational TMA, explain the difference between Rescheduling and Broadcast with at least 70% accuracy.	1) Define: a) Rescheduling b) Broadcast 2) Give an example of the difference between Rescheduling and Broadcast 3) The difference is that reschedule does not always broadcast. There are two functionalities; one requires	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>two steps, the second is a single option that automatically broadcasts the reschedule</p> <p>4) Need to review changes prior to broadcast to ensure data is correct and anomalies are not created (delay)</p> <p>5) Identify what triggers reschedule and broadcast in same function</p> <p>6) Manually scheduled aircraft will be intentionally left out of the reschedule and broadcast if not selected</p> <p>7) Know when to reschedule and when not to reschedule</p>			
Development Notes:				
Review Comments:				

Lesson: PGUI vs. TGUI	Topic: Difference Between GUI Components	Time: 15 minutes
Training Outcome C: Upon completion of this lesson, you will be able to access each of the GUI components of the TMA in an operational environment.		

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TGUI environment, access the TGUI components in accordance with the performance criteria checklist.	1) Timelines a) Access the component b) Explain its purpose 2) Graphs a) Access the component b) Explain its purpose 3) Symbols a) Access the component b) Explain its purpose 4) Alert notices a) Access the component b) Explain its purpose (TMA Operator's Manual, pp. 38 – 59)	WBT ILT refresher	P	Performance assessment Simulation
b. Given access to a PGUI environment, access the PGUI components in accordance with the performance criteria checklist.	1) Aircraft Symbols a) Access the component b) Explain its purpose 2) Datablocks a) Access the component b) Explain its purpose 3) Waypoint Symbols a) Access the component	WBT ILT refresher	P	Performance assessment Simulation

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	b) Explain its purpose 4) PGUI Clock a) Access the component b) Explain its purpose 5) PGUI Scratch Pad/Message Area a) Access the component b) Explain its purpose 6) Range Rings a) Access the component b) Explain its purpose 7) Timelines a) Access the component b) Explain its purpose 8) Sequence List a) Access the component b) Explain its purpose 9) Pointer a) Access the component b) Explain its purpose 10) Function Keys a) Access the component b) Explain its purpose 11) Action Keys a) Access the component b) Explain its purpose 12) Default Files a) Access the component			

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	b)Explain its purpose (TMA Operator's Manual, pp. 63 - 72)			
Development Notes:				
Review Comments:				

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 15 minutes
Training Outcome D: Upon completion of this lesson, you will be able to explain the TGUI display tags and symbols on the TMA in an operational environment.		

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, discuss how the timeline is formatted with color with at least 70% accuracy.	1) Overview of TMA TGUI Display a) TGUI Display at Startup b) Timeline Overview c) Timeline Elements d) Meter Fix Arcs e) TMA Scheduler f) ETA Aircraft Tags g) STA Aircraft Tags and Freeze Horizons h) Timeline Sides i) On Schedule, Delay, and Advance j) Departure Timelines k) Timesharing l) Load Graphs and Forecast Traffic m) Load Graph Display n) Reading Load Graphs o) Reading Lines	WBT ILT refresher	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>(TMA Operator's Manual, pp. 38 - 55)</p> <p>2) Arrival Timeline</p> <ul style="list-style-type: none"> a) Green tags = ETA b) Yellow tags = unfrozen STA c) Blue tags = frozen STA d) Light blue STA (adapted color) = Open Slot e) White tags = proposed MFX f) Green STA = scheduled departures not yet departed g) Red STA (adapted color) = Locally Departed flight h) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color) i) Plum tags = proposed STA of an internal departure <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p> <p>3) Departure Timeline</p> <ul style="list-style-type: none"> a) Green tags = proposed 			

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>departure time</p> <p>b) Yellow tags = manually scheduled time of departures</p> <p>c) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color)</p> <p>d) Plum tags = proposed STA of an internal departure</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>			
b. Given a TGUI, identify components of aircraft tag data on the list with at least 70% accuracy.	<p>1) Aircraft tag color</p> <p>a) Green</p> <p>b) Yellow</p> <p>c) Blue</p> <p>d) Blue (adaptable color)</p> <p>e) Light Blue (adaptable color)</p> <p>f) Orange (adaptable color)</p> <p>g) White</p> <p>h) Plum</p> <p>i) Red (adaptable color)</p> <p>j) Delay Notation (color-coded value)</p> <p>2) Destination airport symbol (FAST SME would do this. If</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>TMA is only adapted for a single airport within a TRACON group, then the option to turn the symbol on is unavailable.)</p> <p>3) Size symbol</p> <ul style="list-style-type: none"> a) Boeing 757 b) Super Heavy c) Heavy d) Large e) Small <p>(TMA Operator's Manual, pp. 40 – 43, Sec. 3.1.3)</p>			
c. Given a TGUI display, discuss how the scheduled time of arrival (STA) side of a timeline can be changed to ripple the list with at least 70% accuracy.	<p>1) Delay value (color change when building up traffic demand)</p> <p>2) Blocked Interval</p> <p>3) Add slots</p> <p>4) Matrix setting (separate these out)</p> <p>5) AMDT</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
d. Given a TGUI display, discuss how the STA side of a timeline can be configured with at least 70% accuracy.	<p>1) Font size</p> <p>2) Freeze Horizon</p> <p>3) Length (15 to 90 minutes)</p> <p>4) Reference (runway threshold, departure airport, arcs, etc.)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	5) Timeline/Gap offset (optional) (TMA Operator's Manual, p. 40, Table 3-1)			
e. Given an operational TMA, explain what a non-controlling TGUI is with at least 70% accuracy.	1) A TGUI that has been configured as a controlling TGUI on the M&C, can have its capabilities limited through adaptation, resulting in a partially controlling TGUI. A partially controlling TGUI is primarily used by adjacent facilities to schedule departures. This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS 2) Similarities with TGUI a) Look b) Control of display features c) Status and Schedule Window 3) Differences a) No control of traffic or airspace b) No ability to change operative features controlling traffic c) No aircraft scheduling	WBT ILT refresher	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>features</p> <p>d)No Apply button functionality</p> <p>(TMA Operator's Manual, p. 61, Sec. 3.3)</p>			
f. Given an operational TMA, explain what a partially controlling TGUI is with at least 70% accuracy.	<p>1) Used by adjacent facilities to schedule departures</p> <p>2) Can be configured to:</p> <p>a)Allow users to swap STAs</p> <p>b)Manually schedule active aircraft that have been adapted for control</p> <p>c)Allow user to switch aircraft between meter/fix arcs that a site has control over</p> <p>3) User cannot modify settings</p> <p>4) No Apply button functionality</p> <p>(TMA Operator's Manual, p. 61, Sec. 3.4)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
g. Given an operational TMA, identify the reference point for the timeline with at least 70% accuracy.	<p>1) TGUI</p> <p>a)Timeline Controls</p> <p>b)Timeline Pop-Up Menu</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 4: PGUI Displays

Lesson: PGUI Display	Topic: PGUI Display Options	Time: 20 minutes
Training Outcome E: Upon completion of this lesson, you will be able to identify the PGUI display map and features on the TMA in an operational environment.		

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify a map feature on an operational TMA with at least 70% accuracy.	1) Full Center airspace radar map (default map) 2) Features a) Aircraft symbols b) Aircraft identifiers c) Datablocks d) Waypoint Symbols e) PGUI Clock f) PGUI Scratch Pad/Message Area g) Range Rings h) Timelines i) Sequence List j) Pointer k) Function Keys l) Default Files	WBT ILT refresher	C	Multiple choice
b. Given a PGUI display, identify the Map Options panel on an operational TMA with at least 70%	1) Full Center airspace radar map (default map) 2) F3 key	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.				
c. Given a PGUI display, describe a Datablock with at least 70% accuracy.	1) Datablock associated with a sample aircraft 2) Three lines of data a) Aircraft ID with size designation b) Assigned runway, Assigned altitude, and/or actual altitude c) Ground speed and HOST sector ID	WBT ILT refresher	C	Multiple choice
d. Given a PGUI display, identify the General Setup Options with at least 70% accuracy.	1) Keyboard 2) F2 key	WBT ILT refresher	C	Multiple choice
e. Given a PGUI display, explain range rings with at least 70% accuracy.	1) Definition: help determine aircraft distances from particular points 2) Map Options panel configuration options a) Radii b) Number of rings c) Range ring boxes	WBT ILT refresher	C	Multiple choice
f. Given a PGUI display, identify the Front key with at least 70% accuracy.	1) Rather than viewing both the TGUI and the PGUI on the same monitor by sizing and moving the displays to occupy different halves of the screen,	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>it is possible to bring up both displays on the same monitor, with each filling out the entire screen, but with one display being in front of the other. The back or hidden display can be brought to the front and made visible by toggling the Front key</p> <p>2) Keyboard</p> <p>3) Can access either the PGUI and TGUI</p>			
Development Notes:				
Review Comments:				

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 45 minutes
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a runway maintenance issue, identify the method to schedule a blocked interval with at least 70% accuracy.	1) Scenario for needed runway maintenance; snowfall requires the need to block a runway for one hour 2) Concept of blocking a runway for a specified time 3) Steps required to insert a blocked interval a) MFX blocked interval b) THD blocked interval 4) Modifying and removing blocked intervals (TMA Operator's Manual, pp. 168 - 175)	WBT ILT refresher	C	Multiple choice
b. Given the F1 Panel, identify the Separation Matrix with at least 70%	1) Configuration and Runway Settings dialog box 2) Set Defaults	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.	a) The Separation Matrix determines the minimum spacing between two types of aircraft approaching a runway threshold b) The Separation Matrix is a square matrix with rows (Ahead) and columns (Behind)			
c. Given an expanded Status and Schedule window, explain when to specify which airport's aircraft to reschedule with at least 70% accuracy.	1) Satellite airport configurations - when change the configuration at the main airport, it changes the configurations at the satellite airport 2) The default setting is set to Off 3) Affects the departure scheduling	WBT ILT refresher	C	Multiple choice
d. Given an expanded Status and Schedule window, identify the Control functions option with at least 70% accuracy.	1) Control button functions is located in the upper left area of the window	WBT ILT refresher	C	Multiple choice
e. Given an expanded Status and Schedule window, identify the	1) Status and Schedule Window 2) Display function button is in the upper left corner of the	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Display function button with at least 70% accuracy.	window			
f. Given an operational TMA, identify the F4 panel with at least 70% accuracy.	1) F4 key 2) Internal Departures Window	WBT ILT refresher	C	Multiple choice
g. Given an expanded Status and Schedule window, identify the Configuration and Runway Settings option with at least 70% accuracy.	1) Status and Schedule Window 2) Configuration and Runway Settings option is a button on the right side of the window	WBT ILT refresher	C	Multiple choice
h. Given a line of arrivals, identify how a call for release within the freeze horizon populates the TMA schedule with at least 70% accuracy.	1) Because the aircraft is within the freeze horizon, high probability of a delay 2) Can freeze at an identified time so more delays are not caused 3) Take majority of the delay on the ground instead of the air because it's easier to hold them on the ground then put them in holding parts	WBT ILT refresher	C	Multiple choice
i. Given an operational TMA, identify actions for which a Broadcast is	1) Schedule internal departures 2) When TMA is updated, delays on TGUIs will be updated	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
required with at least 70% accuracy.	which are different than the delays on controller scopes 3) Need to Broadcast so that revised TMA times are displayed on controller scopes			
j. Given a line of arrivals, explain how to use the F4 panel to schedule internal departures with at least 70% accuracy.	1) F4 key 2) Example is that the aircraft might not be to the freeze horizon yet	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification	Topic: Aircraft Scheduling Data	Time: 30 minutes
Training Outcome H: Upon completion of this lesson, you will be able to explain aircraft scheduling data on a TMA in an operational environment.		

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the impact of assigning runways with at least 70% accuracy.	1) Runway after aircraft proceeds over various fixes 2) Reasons why you might change the default runways for an aircraft a) Runway congestion b) Weather c) Suspended aircraft	WBT ILT refresher	C	Multiple choice
b. Given an operational TMA, explain the impact of allocating runways with at least 70% accuracy.	1) Recognize that numbers may be impacted 2) TMA automatically adjusts runways based on manual data inputs; TMA may adjust numbers	WBT ILT refresher	C	Multiple choice
c. Given an operational TMA, identify the Schedule Aircraft pop-up menu with at least 70% accuracy.	1) Pointer on the aircraft tag and right click 2) The order of pop-up menu options can be controlled by adaptation	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) Sub-menu options for an aircraft are enabled or disabled in adaptation (TMA Operator's Manual, Sec. 8.2, p. 216)			
d. Given a Schedule Aircraft pop-up menu, identify the reschedule commands with at least 70% accuracy.	1) Identify how the reschedule commands can be accessed 2) Commands include <ul style="list-style-type: none"> a) All aircraft b) All and Broadcast to reschedule and update c) ACID and After to reschedule on the STA timeline d) ACID only to reschedule only the aircraft or blocked slot e) All except manually scheduled for STAs that will be locked f) All except manually scheduled and Broadcast for STAs that will be locked g) ACID and After except manually scheduled for STAs that will be locked 	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 216 - 217, 219, Secs. 8.2 and 8.2.1)			
e. Given a Schedule Aircraft pop-up menu, identify the Broadcast commands with at least 70% accuracy.	1) Identify how the broadcast commands can be accessed 2) Commands include a) All aircraft b) All and Broadcast to reschedule and update (TMA Operator's Manual, pp. 216 - 217, 220, Secs. 8.2 and 8.2.2)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 7: Additional Features

Lesson: TGUI Features	Topic: TGUI Features	Time: 30 minutes
Training Outcome I: Upon completion of this lesson, you will be able to describe TGUI features on a TMA in an operational environment.		

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, list the Help functions with at least 70% accuracy.	1) Help key 2) A secondary dialog, Help Index and Search, is also available from the main dialog, On-Line Help (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
b. Given a TGUI display, identify the Quick Key commands with at least 70% accuracy.	1) Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key <ul style="list-style-type: none"> a) C b) F c) R d) T e) U f) X g) Z 	WBT ILT refresher	C	Multiple choice

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 266, Sec. 9.1)			
c. Given a TGUI display, identify the Broadcast Status Indicator option with at least 70% accuracy.	1) Control + D	WBT ILT refresher	C	Multiple choice
d. Given a TGUI display, identify the Weather Input Options and System Parameters option with at least 70% accuracy.	1) Control W 2) The Weather Input and System Parameters dialog box appears (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 9: Setup Options

Lesson: PGUI Display Capabilities	Topic: PGUI Display	Time: 20 minutes
Training Outcome J: Upon completion of this lesson, you will be able to describe PGUI display capabilities on a TMA in an operational environment.		

TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain how to access the General Setup Options panel with at least 70% accuracy.	1) F2 key 2) The General Setup Options panel appears (TMA Operator's Manual, p. 283, Sec. 11.1.1)	WBT ILT refresher	C	Multiple choice
b. Given an operational TMA, describe the Data Tag Features sub-panel with at least 70% accuracy.	1) Drag capability 2) Filter aircraft by arrival airport 3) Filter aircraft by display point (TMA Operator's Manual, p. 286, Sec. 11.2)	WBT ILT refresher	C	Multiple choice
c. Given a Data Tag Features sub-panel, describe PGUI features with at least 70% accuracy.	1) F2 key 2) The General Setup Options panel appears 3) Identify the Data Tag Features in the upper left corner of the panel	WBT ILT refresher	C	Multiple choice

TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 283, Sec. 11.1.1)			
d. Given a General Setup Options panel, describe the Map Display Features sub-panel with at least 70% accuracy.	1) F2 key 2) General Setup Options panel appears 3) Identify the Map Display Features in the upper right corner of the panel (TMA Operator's Manual, p. 283, Sec. 11.1.1)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 1 hour
Training Outcome K: Upon completion of this lesson, you will be able to manipulate the TGUI display colored tags and symbols on the TMA in an operational environment.		

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TMA, identify the need to set up a non-controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.3)	ILT	C	Multiple choice
b. Given access to a TMA, identify the need to set up a partially controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.34)	ILT	C	Multiple choice
c. Given a TGUI, use pointer and interactive keys/elements to obtain Air Traffic Control (ATC) operations information in accordance with the	1) Interacting with the TGUI a) Using the Pointer b) Function Keys c) TGUI Quick Action Keys d) TGUI Hot Keys 2) Non-controlling TGUI	ILT SBL	P	Performance assessment

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.	3) Partially Controlling TGUI			
Development Notes:				
Review Comments:				

ILT Module 4: PGUI Displays

Lesson: Timeline Setup Window Manipulation	Topic: Timeline Setup Window	Time: 3 hours
Training Outcome L: Upon completion of this lesson, you will be able to manipulate the features of the PGUI to control the graphical representation of data on the TMA in an operational environment.		

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the Researcher Control panel to change content of a Datablock in accordance with the performance criteria checklist.	1) Press the F11 key to open the Researcher Control panel 2) Select the Datablock Options Panel 3) Manipulate Datablock data options and display configuration	ILT SBL	P	Performance assessment
b. Given a PGUI display, use the Map Options panel to identify the aircraft symbols in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Definitions of four symbols a) Diamond: aircraft following its filed route b) Triangle: aircraft not following its filed route c) Pound sign: HOST radar is coasting the aircraft d) At sign: No radar tracks received by TMA for	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	several radar sweeps			
c. Given a PGUI display, use the Map Options panel to show TMA-defined waypoint names as a group in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Choose TMA waypoint display option Group	ILT SBL	P	Performance assessment
d. Given a PGUI display, use the General Setup Options to show the current universal time in accordance with the performance criteria checklist.	1) Press the F2 key to open the General Setup Options panel 2) Choose PGUI clock display option	ILT SBL	P	Performance assessment
e. Given a PGUI display, use the General Setup Options to show the scratch pad/message area in accordance with the performance criteria checklist.	1) Press the F2 key to open the General Setup Options panel 2) Choose scratch pad display option a) Left scratch pad box: used in TRACON for runway assignment b) Right scratch pad box: used only in development simulations for sector handoff data entry c) Option may not be	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	available at all TRACONS			
f. Given a PGUI display, use the Map Options to manipulate the range rings by entering values in the boxes in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Enter values in the range ring boxes a) Radii value b) Number of rings	ILT SBL	P	Performance assessment
g. Given a PGUI display, change the timeline from the left side to the right side in accordance with the performance criteria checklist.	1) Toggle the backslash key on the key pad (with Num Lock off) 2) Shift the timeline between the left and right sides of the display	ILT SBL	P	Performance assessment
h. Given a PGUI display, show the Sequence List display in accordance with the performance criteria checklist.	1) Open a PGUI display 2) A text-based Sequence List will be shown	ILT SBL	P	Performance assessment
i. Given a PGUI display, use the functions to interact with the display as directed to obtain information for ATC operations in accordance with the performance	1) Open the Sequence List 2) Click on the Call Sign, drops to Analysis (three sub-options) a) Show Route Analysis Route b) Show Flight Plan Route	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
criteria checklist.	c) Show HOST AK Route (current flight plan route that TMA has from HOST)			
j. Given a monitor with a TGUI display and a monitor with a PGUI display, select the option to view both TGUI and PGUI displays on one monitor, in accordance with the performance criteria checklist.	1) To view both GUI displays on one monitor, resize the GUIs using the pointer 2) An available function that is not used everywhere 3) Window Focus tool is used similar to Front Key a) Developed by second level support b) Available to all, based upon Tech Ops knowledge c) This option must be adapted by the facility ATSS	ILT SBL	P	Performance assessment
k. Given one monitor with both a TGUI and a PGUI display, use the pointer to resize a GUI display in accordance with the performance criteria checklist.	1) Open a PGUI and TGUI on one monitor 2) Using the mouse, move the pointer to dwell on a PGUI display corner 3) Resize the display	ILT SBL	P	Performance assessment
l. Given one monitor with both a TGUI and a PGUI display, use the Front key to toggle the TGUI	1) Open a PGUI and TGUI on one monitor 2) Use the Front Key to toggle the displays	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
and PGUI displays on the monitor in accordance with the performance criteria checklist.				
m. Given a PGUI display, use the Map Options panel to customize map views in accordance with the performance criteria checklist.	1) Press the F3 key to open the Map Options panel 2) Choose the map customization view	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 4 hours
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the acceptance rate using the graph with at least 70% accuracy.	1) TMC creates the TRACON acceptance rate graph 2) Generally, time is on the X-axis and the acceptance rate is on the Y-axis	ILT Small group discussion	C	Multiple choice
b. Given access to an operational TMA, explain what the TRACON acceptance rate can be used for with at least 70% accuracy.	1) TRACON acceptance rate is the maximum number of aircraft per hour that the TRACON will accept under the present conditions 2) Can be used to revise the rate per hour 3) Currently, this is not used regularly in the field, if at all. It is set to Unrestricted Rate (UR)	ILT Small group discussion	C	Multiple choice
c. Given an adapted TMA, identify whether the set	1) Default graphs are set up a) One default is the	ILT	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
up was correct or incorrect after reviewing the graph with at least 70% accuracy.	<p>TRACON acceptance rate graph (demand graph with the number of aircraft at any time)</p> <p>b) Second default is the average delay graph</p> <p>2) Review a default graph and compare to the TGUI timeline to determine if it was set up correctly</p> <p>3) Excessive demand may require another tool to support TMA (may have to use ground delay program, ground stop or something else) as the system is not always a standalone tool</p> <p>4) Can use a scan technique to use FSM, which can tell a TMC when to stop metering</p>	Small group discussion		
d. Given a sample airport demand on TMA, identify the average delay graphs for metering in accordance with at least 70% accuracy.	1) Average delay graph display	ILT	C	Multiple choice
e. Given access to an operational TMA,	1) Blocked interval indicates Meter Fixes or Runways	ILT	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
describe what a blocked interval is with at least 70% accuracy.	<ul style="list-style-type: none"> affected 2) Shows interval start and end times on a timeline 3) Referred to as MFX (Meter Fix) and THD (Runway Threshold) 	Small group discussion		
f. Given access to an operational TMA, explain what buffers are with at least 70% accuracy.	<ul style="list-style-type: none"> 1) Types of buffers: <ul style="list-style-type: none"> a) TRACON b) Time c) Matrix d) Departure 	ILT Small group discussion	C	Multiple choice
g. Given access to an operational TMA, explain what RMD is with at least 70% accuracy.	<ul style="list-style-type: none"> 1) Route Maximum Delay: maximum amount of delay that can be absorbed in the TRACON airspace for a given route <ul style="list-style-type: none"> a) Meter fix to Runway - VFR (RMD is 3 minutes) b) Meter fix to Runway - IFR (RMD is 1 minute) c) RMD is hardcoded in adaptation d) TRACON buffer is usually set high 2) The TMA system reviews both RMD and TRACON buffer to calculate the amount of delay to the TRACON and will 	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	choose the lower of the two values 3) RMD affects the amount of delay assigned to the TRACON (that it can absorb)			
h. Given an operational TMA, explain how the buffers and RMD affect scheduling with at least 70% accuracy.	1) Effect TMA scheduling and delay assignments 2) The amount of delay that the TRACON absorbs is the lesser of the buffer and RMD values 3) "Don't set it and forget it"	ILT Small group discussion	C	Multiple choice
i. Given access to an operational TMA, explain when it is appropriate to suspend an aircraft going into the TRACON airspace with at least 70% accuracy.	1) If the timelines are full and there is no place on a runway for an aircraft 2) Examples: a) If an emergency aircraft requests access for a landing and consequently needs to put on the list, then it'll ripple the list. Instead, the TMC in the center can call the TRACON TMC and request that the emergency aircraft be suspended outside of TMA b) Aircraft takes off without	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	permission (IFR pop-up), the runway is full and if the controller puts the aircraft on the list, then it'll ripple the list so the TMC can call and request suspension or ask the aircraft to go into a holding pattern			
j. Given access to an operational TMA, identify when it is appropriate to suspend an aircraft (TMC) with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Controller identifies a problem and contacts a supervisor 2) Supervisor calls TMC 3) Number is unmanageable (most likely) or an emergency (less likely) 4) When it is appropriate to add an aircraft <ol style="list-style-type: none"> a) Emergency aircraft in the air, TMC controller calls TMC TRACON and requests suspension, which is granted b) TMC TRACON realizes that it is not possible and calls TMC controller back and tells him to put the aircraft back on the list 	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	c) Now it is appropriate to add the aircraft back to the list			
k. Given access to an operational TMA, explain what the consequences of suspending an aircraft are with at least 70% accuracy.	1) When an aircraft is suspended, it does not have a spot on the runway or at the meter fix 2) Normally at the meter fix, the aircraft has to be traveling at a given altitude and a given speed 3) If the meter fix is full, then need to coordinate a different altitude at the meter fix or coordinate a new route 4) The consequence of suspending an aircraft is the need for that coordination	ILT Small group discussion	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given airport capacity information, describe	1) When an airport gets too close to capacity, then it is	ILT	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
conditions under which TMA might be initiated TMA with at least 70% accuracy.	time to start using TMA 2) Airport capacity is the runway acceptance rate 3) Some centers will run TMA at 60% capacity, others at 70% or 90% 4) Also depends on how the aircraft are spread out and where delays are - Will turn TMA On or Off based upon the average delays which are determined using graphs	Small group discussion		
b. Given an operational TMA, identify the fleet mix with at least 70% accuracy.	1) TGUI timeline 2) Identify these types of aircraft by their symbols: a) Boeing 757 b) Super Heavy c) Heavy d) Large e) Small	ILT Small group discussion	C	Multiple choice
c. Given an operational TMA, identify various stream classes with at least 70% accuracy.	1) Stream class is the sequencing of similar aircraft into a traffic flow 2) Types a) Future b) EDC c) TBFM	ILT Small group discussion	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 45, Sec. 3.1.6)			
d. Given the EDC tool, explain what a traffic flow is with at least 70% accuracy.	1) Traffic flow describes the aircraft that are departing from or bound for an airport 2) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary (TMA Operator's Manual, p. 388, Sec. C.1)	ILT Small group discussion	C	Multiple choice
e. Given a low average TBFM delay assigned by TMA, identify when it is appropriate to terminate TBFM with at least 70% accuracy.	1) When to terminate TBFM differs from center to center a) Some facilities use TMA all day (never turn it off) b) Other facilities have policy to use it only when it's necessary (the TMC's decision)	ILT Small group discussion	C	Multiple choice
f. Given an operational TMA, identify discrepancies in the list with at least 70% accuracy.	1) Delay times 2) If the majority of aircraft have 2 or 3 minute delays and one has a 15-minute delay, the 15-minute delay may be a discrepancy	ILT Small group discussion	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>3) Discrepancies are not necessarily bad or unintentional; for example, a reason for the 15-minute delay may be that the aircraft is working as a designed. ACFT may have been released without CFR internally and/or the ACFT departed at the wrong coordinated (reserved) time; VFR to IFR pop up could result in a comparatively extended delay for the better “good” of the system users</p> <p>4) Note that if times on the TGUI timelines are not the same as what’s on the controller scopes, then you’ll receive a Broadcast Required message</p>			
g. Given TBFM, describe at least two conditions under which TBFM should be stopped and TMA turned off with at least 70% accuracy.	<p>1) No airplanes</p> <p>2) Low demand</p> <p>3) Low average delay</p>	<p>ILT</p> <p>Small group discussion</p>	C	Multiple choice
Development Notes:				

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the end of a TBFM session, explain when it is unnecessary to meter with at least 70% accuracy.	1) TMI's description and list 2) When a meter session ends, need to associate different tools 3) When metering would be initiated or discontinued, recognize when to use ground stop 4) When ending a metering session using TMA, need to know when to start the TMI initiative 5) Don't meter when don't have to do so	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an adapted TMA, explain what the Meter Fix Speed is with at least 70% accuracy.	<ol style="list-style-type: none"> 1) It is a pre-adapted value 2) Aircraft has to cross the meter fix at a given altitude and a given speed (pre-adapted in local facility adaptation) 3) TMA uses this value to set scheduling and ETAs 4) Adapted speeds need to be communicated to all affected TMC and ATCS users of the system 	ILT	C	Multiple choice
b. Given an operational TMA, identify when it is appropriate to move outer arcs with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Outer meter arcs display on a PGUI 2) Outer meter arcs are set to On or Off 3) Setting rarely changes because whatever is in use has already been determined to be most efficient 4) Example of when it would be appropriate to move outer meter arcs is if the airspace changes, deviation scenario – when have an arc issue, can talk to adaption specialist, TMA and FAST – need to be able to talk with a FAST SME 	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given an adapted TMA, identify the meter reference points (MRP) or meter fixes (MFX) and associated center sectors with at least 70% accuracy.	<ol style="list-style-type: none"> 1) MRP – meter fix at TRACON boundary, outer fix (outer arcs), outer outer arc (outer 2 arc), outer outer outer arc (outer 3 arc) <ol style="list-style-type: none"> a) A lot of facilities use outer arcs to set sector boundary delays b) TRACON buffer can be manipulated and leg lengths can be adapted (minutes and seconds). <ol style="list-style-type: none"> i) EX: TRACON gets first 3 minutes of delay c) Centers get all the rest of the delay 2) Meter Fix Arc (Outer Meter Fix Arc): A predetermined arc, usually set at the same distance from Meter Fix as the Outer Fix, for which crossing times are calculated, when an aircraft will not travel over an outer fix 3) Metering fix: A fix along an established route where aircraft metering begins in anticipation of the aircraft 	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>entering terminal airspace. Normally, this fix is established 10,000 feet above airport elevation at a distance from the airport that will facilitate a profile descent to that airport</p> <p>4) Cadre needs to know the meter fixes (all the outer arcs)</p> <p>5) CPCs only need to know MFXs applicable to their area of control</p>			
d. Given an adapted TMA and Display System Replacement (DSR) console, identify whether the Keyboard Video Display Terminal (KVDT) or air traffic workstation TMA command is set to On or Off with at least 70% accuracy.	<p>1) KVDT TMA/AT workstation command</p> <p>2) CP or EPTMAD On/Off setting</p>	ILT	C	Multiple choice
e. Given an operational TMA, explain conditions under which adjacent center metering might be initiated with at least	<p>1) If Sectors 1 – 3 are in ARTCC A and Sector 4 is in ARTCC B, then it will be necessary to perform adjacent center metering</p>	ILT	C	Short answer

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
70% accuracy.	2) If all 4 sectors are in one air traffic control center (ATCC), then adjacent center metering is not needed 3) ACM is a pre-adapted value			
Development Notes:				
Review Comments:				

Lesson: Aircraft Swap	Topic: STA Swap and Continuous Monitoring	Time: 4 hours
Training Outcome N: Upon completion of this lesson, you will be able to perform the steps to swap aircraft on a TMA in an operational environment.		

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, perform the steps required to swap the scheduled times of arrival of two inbound aircraft in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Review the reasons to swap two aircraft 2) Identify the Separation buffer, Time buffer, and RMD <ol style="list-style-type: none"> a) RMD is hardcoded and a TMC cannot change it b) Open the F1 panel to view the Separation buffer and the Time buffer c) Ask the System Administrator to view the RMD 3) Discuss the importance of continuous monitoring 4) Identify when it is appropriate to swap their scheduled times of arrival of aircraft <ol style="list-style-type: none"> a) Enabled in adaptation b) Can swap STAs for active aircraft in control of <p>(TMA Operator's Manual, p.</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>239, Sec. 8.2.15)</p> <ol style="list-style-type: none"> 5) Show the Schedule Aircraft pop-up menu 6) Bring the cursor to the Swap line 7) Right click and hold the mouse button or left click on Swap to highlight a flight 8) Right click on the aircraft to swap with and open the Schedule Aircraft pop-up menu 9) Right click and hold the mouse button or left click on Swap with 10) The aircrafts are switched if the two flights are in the same superstream class <p>(TMA Operator's Manual, pp. 236 - 238, Sec. 8.2.15)</p>			
Development Notes:				
Review Comments:				

Lesson: Use of the Status and Schedule Window	Topic: Status and Schedule Window Scheduling parameters	Time: 7 hours
Training Outcome O: Upon completion of this lesson, you will be able to use the Status and Schedule window to configure scheduling parameters on a TMA in an operational environment.		

TLO 20: Given a Status and Schedule window, you will be able to configure the HOST/ERAM connection on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, establish the HOST/En Route Automation Modernization (ERAM) connection in accordance with the performance criteria checklist.	1) Open the Status and Schedule window 2) Choose an airport from the list next to the View Parameters for label 3) Status of the HOST connection is indicated by the message One Way HOST/ERAM connection or Two-Way HOST/ERAM connection (TMA Operator's Manual, pp. 129 - 130, Sec. 7.1.2)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, select the Current Terminal Radar Approach Control Facility (TRACON) Parameters Section for expansion in accordance with the performance criteria checklist.	1) Click on the triangle symbol next to Current TRACON Parameters 2) The Current TRACON Parameters section will expand (TMA Operator's Manual, p. 149)	ILT SBL	P	Performance assessment
b. Given an expanded Status and Schedule window, perform the steps to set the future TRACON parameters in accordance with the performance criteria checklist.	1) Select the TAR1 button to open the Future TRACON Acceptance Rate Data dialog box 2) Use the arrows to modify the TRACON Acceptance Rate 3) Specify the time at which the change will take place using the arrows next to the Specify UTC Activation Time box 4) Select the Include manually scheduled aircraft check button 5) Click on the Apply button (TMA Operator's Manual, p. 185, Sec. 7.7.1)	ILT SBL	P	Performance assessment
c. Given access to an operational TMA,	1) Can be used as a tool to display the TRACON	ILT	P	Performance

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
construct the TRACON acceptance rate graph in accordance with the performance criteria checklist.	acceptance 2) Could tell you when you do or do not need to meter 3) Excessive demand may require another tool to support TMA (may have to use ground delay program, ground stop or something else) as the system is not always a standalone tool 4) Can use a scan technique to use FSM, which can tell a TMC when to stop metering 5) Demonstrate how to construct the TRACON acceptance rate graph	SBL		assessment
Development Notes:				
Review Comments:				

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Status and Schedule window, select the Current Gate and Meter Fix (MFX)	1) Click on the triangle symbol next to Current Gate and MFX Parameters 2) The Current Gate and MFX	ILT SBL	P	Performance assessment

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Parameters Section for expansion in accordance with the performance criteria checklist.	Parameters section will expand (TMA Operator's Manual, p. 152)			
b. Given a Status and Schedule window, select the Gate and MFX parameters in accordance with the performance criteria checklist.	1) Introduce a scenario which requires a change to Gate and MFX parameters. 2) Select the appropriate options for each field within the parameters (TMA Operator's Manual, pp. 152 - 167)	ILT SBL	P	Performance assessment
c. Given an expanded Status and Schedule window, perform the steps to set the future Gate and Meter Fix parameters in accordance with the performance criteria checklist.	1) Select Rate 1 to open the Future Gate and MFX Acceptance Rate dialog box 2) Specify the time at which the change will take place in the Specify UTC Activation Time box using the up and down arrows next to the box 3) Select the Include manually scheduled aircraft check button located below the UTC Activation Time box to have aircraft rescheduled when the new limits are applied	ILT SBL	P	Performance assessment

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<ol style="list-style-type: none"> 4) Click on Apply to make the changes or Close 5) Select Streams1 from the expanded Status and Schedule window to open the Future Stream Class dialog box 6) Enter the values individually for each super stream in each Gate <ol style="list-style-type: none"> a) Or set values for super streams using shortcut text that describes the super streams to be modified b) Or accept the default values by clicking on the Set Defaults button 7) If multiple arrival airports exist, toggle buttons will be shown to specify which airports' stream class should be set 8) Specify the time at which the change will take place with the addition of Activation Time 9) Stream Class Miles-in-Trail 			

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>(MiT) restrictions are set for individual super streams. A super stream represents flows of aircraft that are scheduled together as a single stream, and is defined as a combination of stream classes. Stream classes define which aircraft are always grouped together based on different criteria (e.g., meter fix, arrival airport, and engine type) and are defined in adaptation. Super streams are defined in adaptation and can also be created dynamically by the user. The dialog provides multiple mapping sets, each one providing different combinations of stream classes into super streams. By applying a specific mapping set, the user can cause different flows of aircraft to be scheduled together</p>			

TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 154 - 156, 188, Secs. 7.4.2 and 7.8.2)			
Development Notes:				
Review Comments:				

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, use the Control function options to choose Quickset in accordance with the performance criteria checklist.	1) Enter Control K 2) Open Quickset dialog (TMA Operator's Manual, p. 58, Sec. 3.2.4)	SBL	P	Performance criteria checklist
b. Given an expanded Status and Schedule window, choose to turn on TBFM times on the MDM (i.e., controller's radar scope or DSR console) in accordance with the performance criteria checklist.	1) Single button click for this to display on the controller's scope 2) Check or uncheck a box 3) This is the last step in the process of set up	ILT SBL	P	Performance assessment

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given an expanded Status and Schedule window, use the Control function to choose Freeze Horizons in accordance with the performance criteria checklist.	1) Select Freeze Horizons from the Control pull-down menu 2) The Freeze Horizons dialog box appears (TMA Operator's Manual, pp. 194 - 195, Sec. 7.9.4)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 25: Given an operational TMA, you will be able to use the F4 Panel to schedule departures on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, use the F4 Panel to schedule departures in accordance with the performance criteria checklist.	1) Press F4 2) Select an unscheduled flight 3) Select the Schedule button in the upper-half of the Internal Departures window to bring up the dialog box for scheduling highlighted aircraft 4) The Schedule a Departure dialog box will open with these six parts a) Arrival airport and flight	ILT SBL	P	Performance assessment

TLO 25: Given an operational TMA, you will be able to use the F4 Panel to schedule departures on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	ID b) Flight plan c) Original Flight Estimate d) View/Change Scheduled Route e) Compute STA and Suggest Departure Time f) Buttons to freeze times, accept times, and close the window (TMA Operator's Manual, pp. 258 - 259, Sec. 8.8)			
Development Notes:				
Review Comments:				

TLO 26: Given an operational TMA, you will be able to reschedule an aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, use the Display function button to access the pull-down menu of options in accordance with the performance	1) Select Display from the Status and Schedule window 2) A pull-down menu appears 3) Press the F1 key (TMA Operator's Manual, p. 211, Sec. 7.10)	ILT SBL	P	Performance assessment

TLO 26: Given an operational TMA, you will be able to reschedule an aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
criteria checklist.				
b. Given a Configuration and Runway Settings dialog box, choose a configuration to use the Configurations method in accordance with the performance criteria checklist.	1) Select Configurations 2) A pull-down menu appears 3) Click on the desired configuration (TMA Operator's Manual, pp. 133 - 134, Sec. 7.2.1.1)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a timeline reference point type, perform the steps required to set up a blocked interval lifecycle (from creation to deletion) in accordance with the performance criteria checklist.	1) To block an interval on a meter fix timeline: a) Dwell the pointer in the center of the MFX timeline at one end of the interval b) Middle click and hold c) Enter Control and hold d) While holding both buttons, move the pointer to the other end of the interval to be blocked	ILT SBL	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	e) Release the middle click f) Release Control g) Note: there are two alternative ways to create blocked intervals (TMA Operator's Manual, p. 169, Sec. 7.5.1)			
b. Given an operational TMA, choose to gather all relevant information to provide to the person who can make adaptation changes in accordance with the performance criteria checklist.	1) Display route to observe issue/identify anomaly with the nominal route a) Example: choice could be to shorten or lengthen a route, but either way it will increase another controller's workload and affect accuracy of TMA. 2) Gather supporting data to provide to Cadre 3) Cadre analyzes the data 4) If unable to resolve, contact the system administrator 5) The main point is to not give conflicting information to the system administrator 6) Show the nominal route which will be modified as required	ILT SBL	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given an expanded Status and Schedule window, revise future parameters in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) The Status and Schedule Window opens to show future scheduled changes <ol style="list-style-type: none"> a) While there are buttons to work with two future configurations, at present the system can only handle a single future configuration b) Future configuration changeover times are indicated on the timeline, in addition to in the Status and Schedule window 2) After this window expands, the user has the opportunity to input or revise future parameters 3) The three major operations, which are called from the top section, are: <ol style="list-style-type: none"> a) Configuration b) Airport Acceptance Rate (AAR) c) Separation Matrix 	ILT SBL	P	Performance assessment
d. Given access to an operational TMA, administer settings in	<ol style="list-style-type: none"> 1) Most critical component of setting up the arrival rate 2) TMC sets up Runway Matrix 	ILT SBL	P	Performance assessment

TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accordance with the performance criteria checklist.	settings and TRACON settings 3) Need to identify the buttonology 4) Works in concert with the TRACON buffer			nt
Development Notes:				
Review Comments:				

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation	Topic: Aircraft Scheduling Window	Time: 4 hours
Training Outcome P: Upon completion of this lesson, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on a TMA in an operational environment.		

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI, manipulate the Aircraft Scheduling window to broadcast aircraft scheduling changes in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Make proper notification that a broadcast is going to occur <ol style="list-style-type: none"> a) Broadcast required message 2) Demonstrate how to broadcast <ol style="list-style-type: none"> a) Broadcast 	ILT SBL	P	Performance assessment
b. Given a Status and Schedule window, determine the number of aircraft that crossed a meter fix in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) This is a display function for TMC 2) One option is to left click on one aircraft and drag it to the other airplane <ol style="list-style-type: none"> a) All airplanes in between will be highlighted b) A dialog box will display the number 3) Another option is to select 	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	the F5 key a) A Traffic Count window will open			
c. Given an operational TMA, display the meter list in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) This is an ATCS function 2) DSR console function (run by HOST or being replaced by ERAM) 3) To turn on/off meter lists from display keys on the DC view, toggle TMA LIST on the Display Filter Selection Panel on the DSR MDM 4) Toggle the On/Off DSR buttons on the window display TMA Meter Lists allow the ATCS to understand the sequence of the arrival flow through their sector, however when multiple airports are being metered the lists can take up considerable space on the MDM 5) To reduce the size of the Meter Lists, a new feature in the TBFM software called Meter List Alternate 	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	Sequence (MLAS) can be adapted to change the parameter at which aircraft will populate or drop from a sector Meter List (Adapted at ZOB – need SME input)			
d. Given a Meter List display, identify what is in the scope in accordance with the performance criteria checklist.	1) This is an ATCS function 2) Turn the scope on 3) Identify which aircraft are being metered 4) Find the ETA, STA, DCT 5) CPC would need to determine if the list is out of order by looking at the list	ILT SBL	P	Performance assessment
e. Given a Meter List display, manipulate the list to order the aircraft in accordance with the performance criteria checklist.	1) One way is to swap aircraft A and aircraft B a)Type “SW” b)Hit spacebar c)Type computer ID (CID) or aircraft ID (AID) d)Hit spacebar e)Type computer ID or aircraft ID f) Hit Enter g)The two STAs will change 2) Another option is to resequence, which	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>incorporates the same swap steps after typing "SQ" but for three to five aircraft</p> <p>3) Swaps or resequencing can only occur if the aircraft are in the controller's sector and the controller has control of them all</p>			
f. Given a runway configuration, perform the steps to reassign an aircraft to a different runway in accordance with the performance criteria checklist.	<p>1) This is for TMC only</p> <p>2) If you assign an aircraft to a different runway, for that aircraft only, it receives all new STAs (changes all delay times on CPC scopes)</p> <p>3) To manually schedule, which is not encouraged, drag an aircraft to a runway, then you'll see a green or red bar appear on the timeline</p> <p>a) Green means that the re-assignment meets separation standards</p> <p>b) Red means that re-assignment can be performed, but it does not meet the separation standards</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	4) The preferred option is to Right click on aircraft a) Choose "Assign Runway" from the drop-down box b) Choose the runway assignment from the drop-down box c) Once the runway assignment is chosen, the re-assignment will be processed			
Development Notes:				
Review Comments:				

ILT Module 7: Additional Features

Lesson: TGUI Features Data Production	Topic: TGUI Features Data	Time: 2 hours
Training Outcome Q: Upon completion of this lesson, you will be able to produce data using TGUI features on a TMA in an operational environment.		

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, utilize a Quick Key command to complete an action in accordance with the performance criteria checklist.	1) Press the Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key 3) Display airport data by pressing down Control + A 4) Obtain a traffic count by selecting F5 5) Close window by pressing down Alt + F4 (TMA Operator's Manual, p. 266, Sec. 9.1)	SBL	P	Performance assessment
b. Given an operational TMA, access the Broadcast Status Indicator dialog box in accordance with the	1) Enter Control D (TMA Operator's Manual, p. 272, Sec. 9.3)	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.				
c. Given a Weather Input Options and System Parameters dialog box, change system parameters in accordance with the performance criteria checklist.	1) Enter Control W 2) Toggle the On/Off buttons next to Reschedule for MP change a) Controls whether TMA reschedules aircraft when flights are switched between specific meter fixes b) Allows change of flights to nearby streams without changing frozen STAs (TMA Operator's Manual, p. 271, Sec. 9.2)	SBL	P	Performance assessment
d. Given a need to send a general information message from TMA, perform the steps necessary to send it in accordance with performance criteria checklist.	1) Message to HOST/ERAM dialog provides the capability for the operator to send HOST/ERAM messages (e.g., general information, interface test) 2) Access the Control pull-down menu 3) Choose the Send option (TMA Operator's Manual, Sec.	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	7.9.10)			
Development Notes:				
Review Comments:				

ILT Module 8: PGUI Map Display Options

Lesson: PGUI Map Options Identification	Topic: PGUI Map Options	Time: 30 minutes
Training Outcome R: Upon completion of this lesson, you will be able to identify the options displayed on the PGUI map in an operational environment.		

TLO 30: Given a PGUI display, you will be able to identify the options displayed on the PGUI map with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the F3 Key with at least 70% accuracy.	1) Review the keyboard 2) Identify the F3 key (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
b. Given a PGUI display, identify an option displayed on the PGUI map with at least 70% accuracy.	1) Accessed by the F3 key 2) Discuss the Map Options panel 3) Identify the Select Map button (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: PGUI Map Options Modification	Topic: TGUI Map Options (continued)	Time: 1 hour
Training Outcome S: Upon completion of this lesson, you will be able to modify the options displayed on the PGUI map within the TMA in an operational environment.		

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the F3 Key to view a Center's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All Center from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
b. Given a PGUI display, use the F3 Key to view a TRACON's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All TRACON from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a PGUI display, use the F3 Key to view selected gate airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose SOUTH-GATE from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
d. Given a PGUI display, use the F3 Key to suppress the map display in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose No Map from the list of available PGUI map options 5) Suppressing the map is useful to clearly see the sequence list or other features without the map displays interfering (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 9: Setup Options

Lesson: PGUI Display Creation	Topic: PGUI Display	Time: 2 hours
Training Outcome T: Upon completion of this lesson, you will be able to create a PGUI display with customized dynamic elements on a TMA in an operational environment.		

TLO 32: Given a General Setup Options panel, you will be able to create a PGUI display with customized dynamic elements on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a General Setup Options panel, create a PGUI display using elements in accordance with the performance criteria checklist.	1) Press the F2 key 2) Choose the buttons and slide bar options (TMA Operator's Manual, p. 283, Sec. 11.1.1)	ILT SBL The performance criteria checklist will include providing the learner with a screen shot of a PGUI and ask them to replicate the general positioning of the components shown in the screen shot	P	Performance assessment
b. Given a Map Display	1) Press the F2 key	ILT	P	Performance

TLO 32: Given a General Setup Options panel, you will be able to create a PGUI display with customized dynamic elements on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Features sub-panel, choose the PGUI capabilities in accordance with the performance criteria checklist.	2) Five capabilities a) Scratch Pad Available b) Zoom Available c) PGUI Clock d) VFR Aircraft e) TRACON Datablocks shown in Center (TMA Operator's Manual, pp. 295 - 298, Sec. 11.3)	SBL		nce assessme nt
Development Notes:				
Review Comments:				

ILT Module 10: Map Options

Lesson: PGUI Map Options	Topic: F3 Key Options	Time: 30 minutes
Training Outcome U: Upon completion of this lesson, you will be able to recall the PGUI map options on a TMA in an operational environment.		

TLO 33: Given a Map Options (F3) panel, you will be able to recall the PGUI map options on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map Options (F3) panel, recall PGUI map options on an operational TMA with at least 70% accuracy.	1) Map Options <ul style="list-style-type: none"> a) Brightness Controls b) Range Rings c) Fixes d) Routes e) Boundaries f) Sector Data (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: PGUI Map Manipulation	Topic: PGUI Map Features and Files	Time: 1 hour
Training Outcome V: Upon completion of this lesson, you will be able to manipulate the PGUI map features and display on a TMA in an operational environment.		

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map View Options (F3) panel, select PGUI files in accordance with the performance criteria checklist.	1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a file name from the list and click the Apply button (TMA Operator's Manual, p. 300, Sec. 12.1)	SBL	P	Performance assessment
b. Given a Map Option (F3) panel, select PGUI features in accordance with the performance criteria checklist.	1) Adjust these two Brightness Controls features: a) Datablock b) Sequence List 2) Adjust the Initial Radius for the Range Rings feature 3) Select the Meter Points box as the Fixes figure 4) Select the Preferred Departure Routes for the Routes feature (TMA Operator's Manual, p. 277, Sec. 10.1)	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a Map Options (F3) panel, manipulate the map perspective on the PGUI in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a filename from the list 4) Click the Apply button 5) Click on the Center Zoom File Save button 6) Select a filename from the list 7) Click the Save button 8) Click on the TMA button next to Set View from Sector Menu 9) Select a pre-defined PGUI sector map from a drop-down list 10) Click on the Map Options panel OK button 11) Click on the Set Map Range button 12) Hold the mouse button down, scroll down the list, select the desired range and release the mouse button 13) Click on the Map Options panel OK button 14) Click on the Set Map Range Full Map button 	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	15) Click on the Map Options panel OK button (TMA Operator's Manual, pp. 300 - 305, Sec. 12.1)			
Development Notes:				
Review Comments:				

ILT Module 12: Sequence Options

Lesson: Sequencing and Its Effects	Topic: Sequence List	Time: 4 hours
Training Outcome X: Upon completion of this lesson, you will be able to identify the sequence lists on a TMA in an operational environment.		

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, define the three Sequence List categories with at least 70% accuracy.	1) Sequence List Traffic: Identifies aircraft included in the Sequence List 2) Sequence List Data: Identifies data displayed in the Sequence List 3) Sequence List Format: Identifies how the Sequence List is displayed (i.e., what order the aircraft are in, how precise the times are, in a compact or spread-out format) (TMA Operator's Manual, pp. 321 - 333, Sec. 14.5)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 13: PGUI Timeline Options

Lesson: Definition of Timeline Options Panel	Topic: Timeline Options	Time: 30 minutes
Training Outcome Z: Upon completion of this lesson, you will be able to describe the Timeline Options panel parts on a TMA in an operational environment.		

TLO 38: Given a PGUI display, you will be able to define the Timeline Options panel parts on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Timeline Options panel with at least 70% accuracy.	1) Individual display options can be accessed via the F10 key: Timeline Options Panel 2) User can choose whether to display timelines, whether to stack timelines, and how many timelines to display	ILT	C	Multiple choice
b. Given a Timeline Options panel, describe the four distinct parts of the panel with at least 70% accuracy.	1) The four distinct parts are: a) Timeline defaults files b) Number of timelines c) Set up options for each side of each timeline d) Color options	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Creation of an PGUI Timeline Display Using the Timeline Options Panel	Topic: PGUI Timeline Options	Time: 1 hour 30 minutes
Training Outcome AA: Upon completion of this lesson, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on a TMA in an operational environment.		

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI timeline display, discuss the Quick Copy operations with at least 70% accuracy.	1) Ability to streamline the development of multiple timelines based on one setup 2) Have the ability to copy: <ul style="list-style-type: none"> a) An entire timeline b) An entire timeline side c) A single option on a timeline or timeline side (TMA Operator's Manual, pp. 349 - 357, Sec. 15.5)	ILT	C	Multiple choice
b. Given a Timeline Options panel, explain options to change the aircraft tag color with at least 70% accuracy.	1) Ability to change the color appearance of the following: <ul style="list-style-type: none"> a) ETA b) STA Frozen c) STA Unfrozen (TMA Operator's Manual, p. 357, Sec. 15.6)	ILT	C	Multiple choice
c. Given a Timeline Options (F10) panel, access the	1) Press the F10 key 2) Click on the Open button	ILT	P	Performance

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
PGUI files in accordance with the performance criteria checklist.	3) Select a default file from the Timeline File Selection list 4) Click Apply 5) Press the F10 key 6) Click on the Save button 7) Select a default file from the Save Timeline File list 8) Click OK (TMA Operator's Manual, pp. 336 - 338, Sec. 15.2.1 - 15.2.2)	SBL		assessment
d. Given a PGUI display, choose the timeline appearance options in accordance with the performance criteria checklist.	1) Select the Display Timelines checkbox 2) Select the Stack Timelines checkbox 3) Select the Number of Timelines option 4) For each timeline, the following options can be set: a) Length b) Gap c) Reference 5) Four options can be set separately for the left and right side of each timeline: a) Arrival Type b) Aircraft Size c) Meter Fixes	ILT SBL	P	Performance assessment

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	d) Runways (TMA Operator's Manual, pp. 338 - 349, Secs. 15.3 - 15.4)			
Development Notes:				
Review Comments:				

ILT Module 14: Control Panel

Lesson: Datablock Options Capabilities	Topic: Researcher Control Panel	Time: 1 hour
Training Outcome BB: Upon completion of this lesson, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on a TMA in an operational environment.		

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Researcher Control Panel with at least 70% accuracy.	1) F11 key (TMA Operator's Manual, p. 359, Sec. 16.1)	ILT	C	Multiple choice
b. Given a PGUI display, describe the Researcher Control Panel with at	1) Provides configuration of the data elements displayed in an aircraft's Datablock and	ILT	C	Multiple choice

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
least 70% accuracy.	customizes the Color of the various PGUI elements (TMA Operator's Manual, p. 359, Sec. 16.1)			
Development Notes:				
Review Comments:				

Lesson: Manipulation of an Aircraft's Datablock Element Display and Color Scheme	Topic: PGUI Color Files and Capabilities	Time: 1 hour
Training Outcome CC: Upon completion of this lesson, you will be able to manipulate an aircraft's Datablock element display and color scheme on a TMA in an operational environment.		

TLO 41: Given a PGUI display, you will be able to manipulate an aircraft's Datablock element display and color scheme on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Datablock Options Panel, explain the PGUI capabilities with at least 70% accuracy.	1) Explain how to access the Datablock 2) How to make changes 3) How to save changes	ILT SBL	C	Multiple choice
b. Given a Researcher Control Panel, select PGUI color files in accordance with the performance criteria checklist.	1) Open and save buttons 2) Load Defaults Colors button (TMA Operator's Manual, p. 363, Sec. 16.3)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions	Topic: Traffic Management Functions	Time: 4 hours
Training Outcome DD: Upon completion of this lesson, you will be able to identify the PGUI traffic management functions on a TMA in an operational environment.		

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify separation data between two points in accordance with at least 70% accuracy.	1) How separation data is accessed (TMA Operator's Manual, p. 365, Sec. 17.3)	ILT	C	Multiple choice
b. Given access to an operational TMA, label all the display information options with at least 70% accuracy.	1) Include buttonology on how to develop and manipulate Datablocks on a PGUI 2) How to build the graphical display of the Datablock	ILT	C	Multiple choice
c. Given access to an operational TMA, explain the PGUI Datablock display information with at least 70% accuracy.	1) What is displayed in the PGUI Datablock	ILT	C	Multiple choice
d. Given the interface control document, identify when it is appropriate to change	1) Interface control document 2) Settings for which Cadre can work with FAST to utilize 3) Not software; be able to have	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
settings within the parameters of the interface control document at least 70% accuracy.	an educated discussion with FAST team 4) Problem or initial adaptation			
e. Given an operational TMA, identify when it is appropriate to suspend aircraft with at least 70% accuracy.	1) Suspending an aircraft removes that aircraft from normal arrival traffic scheduling calculations 2) To temporarily increase acceptance rate without adjusting metering rates (EX: a few unexpected visual approaches outside of the normal flow) 3) EX: When a brief period of unexpected VAPS have occurred to a different runway (aircraft leaving the main metered flow), it may be appropriate to suspend these aircraft since they are no longer taking up space on the metered flow. If these aircraft have already arrived, suspending a few aircraft on the metered flow may be appropriate	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>4) On the PGUI a suspended aircraft is highlighted for a brief amount of time then just looks like a regular aircraft</p> <p>(TMA Operator's Manual, p. 366, Sec. 17.4)</p>			
f. Given a STAR route, explain why it is converted into TMA routes with at least 70% accuracy.	<p>1) STAR is a pre-planned IFR air traffic control arrival procedures published in graphic and/or text form</p> <p>2) STARS provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area</p> <p>3) In calculating ETAs, TMA analyzes the possible routes and trajectories that an aircraft is likely to take based on factors such as assigned meter fix, destination airport, airport configuration, engine type and approach segment, and the aircraft's current position, altitude, heading, and speed</p> <p>4) STAR routes must be</p>	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>configured in TMA in order for the system to calculate ETAs, just like all other routes and airport configurations</p> <p>(TMA Operator's Manual, Sec. 1.3)</p>			
g. Given an operational TMA, identify relevant situational information with at least 70% accuracy.	1) TMA information paired down to determine what information needs to be run for a particular flow	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Use of the PGUI Traffic Management Functions	Topic: Functional Keys and Displays	Time: 6 hours
Training Outcome EE: Upon completion of this lesson, you will be able to utilize the PGUI traffic management functions on a TMA in an operational environment.		

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI, use the pointer to display a limited aircraft data message in accordance with the performance criteria checklist.	1) Dwell the pointer on the aircraft symbol 2) If the Sequence List is displayed, dwell the pointer on the line corresponding to that aircraft (TMA Operator's Manual, p. 364, Sec. 17.1)	ILT SBL	P	Performance assessment
b. Given a PGUI display, choose to temporarily suspend an aircraft from normal arrival traffic scheduling calculations in accordance with the performance criteria checklist.	1) Dwell on the aircraft symbol or Datablock 2) Press "x" 3) A scheduling suspension notice will appear 4) The STA for the aircraft in the Sequence List will change to "xxxx" and the ETA will be enclosed within square brackets (TMA Operator's Manual, p. 366, Sec. 17.4)	ILT SBL	P	Performance assessment

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given access to an operational TMA, choose to display different views or lists in accordance with the performance criteria checklist.	1) Bring up maps 2) Bring up sequence lists	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, administer the Datablock completely in accordance with the performance criteria checklist.	1) Provide a scenario to build out the Datablock using a checklist 2) Learners should be able to make decisions on how to build the graphical display of the Datablock 3) Explain that this is often driven by preference (TMA Operator's Manual, pp. 359 - 362, Sec. 16.2)	ILT SBL	P	Performance assessment
b. Given access to an operational TMA,	1) Select the filename of the Datablock file last loaded	ILT	P	Performance

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
develop the Datablock in accordance with the performance criteria checklist.	2) Call up the Datablock File Selection panel by selecting the Open button 3) Call up the Save Datablock File panel by selecting the SAVE button (TMA Operator's Manual, p. 359, Sec. 16.2)	SBL		assessment
c. Given access to an operational TMA, construct the Datablock graphical display in accordance with the performance criteria checklist.	1) Select the Datablock Type 2) Select the Datablock Line Number 3) Select the Compress Line 4) Select the Field 5) Assign multiple items to be timeshared in a single Field 6) Change the Datablock Options drop-down box 7) Enable/Disable (On/Off) the data selected for the specified line 8) Open the APPEND ITEMS Panel by pressing the Append Items button 9) Select a Seconds value for timesharing 10) Select Item Mode 11) Select the Color Options	ILT SBL	P	Performance assessment

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	using the drop down menu (TMA Operator's Manual, pp. 359 - 362, Sec. 16.2)			
Development Notes:				
Review Comments:				

ILT Module 16: En Route Departure Capability

Lesson: Traffic Flows	Topic: Ground Delay Program and EDCT	Time: 1 hour
Training Outcome FF: Upon completion of this lesson, you will be able to describe traffic flows in an operational environment.		

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define a ground delay program with at least 70% accuracy.	1) Why double delays occur 2) Impact of circumventing double delays (what happens if freeze early in an attempt to preserve list) a) What does it look like when you have a ground delay program going on? b) What is the impact of manipulating the ground delay programs?	ILT	C	Multiple choice
b. Given access to an operational TMA, describe what the EDCT characters look like with at least 70% accuracy.	1) EDC is an enhancement to TMA deployed at ARTCCs where an en route departure and metering functionality is required 2) EDC displays a) TGUI b) PGUI c) Single GUI configuration	ILT	C	Multiple choice

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 389 - 390, Secs. C.1.1 - C.2.2.1)			
Development Notes:				
Review Comments:				

Lesson: Management of Traffic Flows Using the EDC Tool	Topic: EDC Tool	Time: 2 hours
Training Outcome GG: Upon completion of this lesson, you will be able to use the EDC tool to manage traffic flows in an operational environment.		

TLO 46: Given the EDC tool, you will be able to manage traffic flows in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the EDC tool, define the EDC tool with at least 70% accuracy.	1) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary 2) Traffic flow describes the aircraft that are departing from or bound for an airport (TMA Operator's Manual, p. 388, Sec. C.1)	ILT	C	Multiple choice

TLO 46: Given the EDC tool, you will be able to manage traffic flows in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
b. Given a Multiple Super Stream De-confliction (MSSD) group, utilize EDC to set en route mile-in-trail restrictions in accordance with the performance criteria checklist.	1) Select View on the Stream Classes for Time Based Metering dialog 2) The View Super Stream Groups dialog appears 3) Enter a new value in the spin box 4) Press the Apply button (TMA Operator's Manual, p. 402, Sec. C.2.3.9)	ILT SBL	P	Performance assessment
c. Given the EDC tool, manage en route traffic flows exiting an ARTCC to an adjacent ARTCC in accordance with the performance criteria checklist.	1) Demonstrate how to set up a blank EDC to meter outbound flows	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change	Topic: En Route Anomalies and Differences	Time: 4 hours
Training Outcome HH: Upon completion of this lesson, you will be able to solve problems on an operational TMA.		

TLO 47: Given a problem on an operational TMA, you will be able to identify the best method to communicate the issue the designated point of contact with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an arrival and departure list, identify an anomaly with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Identify if it is really an anomaly or just new to the user <ol style="list-style-type: none"> a) Example - visual depiction of fleet mix appears normal except for a large gap where demand exists 2) Research - take a screen shot, talk with colleagues, find a FAST person or test it in the Support String 3) Example - Aircraft times are off. One ac is 15 min off. In the event of a large gap, you can; swap ac, indicator is a break in uniform visual 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 48: Given access to an operational TMA, you will be able to discuss when it is appropriate to initiate an adaptation change with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, explain why routes have different configurations with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Routes pre-configured within TRACON adaptation have to be as accurate as possible; if routes are inaccurate, they will negatively impact the schedule 2) Based on how each facility has set up TMA 3) Internal satellites affect how airports input flows into existing streams 4) Routes adapted inside of a TRACON should be adapted to real-time operation. Incorrect routes will have negative affect on schedule 5) Most efficient route of flights is based on restrictions (noise abatement and route planning) 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA with a technical problem, describe what can be done at a national level with at least 70% accuracy.	1) What can be done at the local level 2) What can be done externally; reaching to other towers and the Help Desk	ILT	C	Multiple choice
b. Given access to an operational TMA, explain the difference between a red x on the scope and a red x on TMA on a scope with at least 70% accuracy.	1) Red X on a scope means a controller is not receiving HOST data 2) Red X on TMA means TMA is not receiving HOST data and cannot be used to meter	ILT	C	Multiple choice
c. Given an operational TMA, identify the Print Screen button with at least 70% accuracy.	1) TGUI hot keys on the keyboard 2) How to use print screen (TMA Operator's Manual, p. 58, Sec. 3.2.4)	ILT	C	Multiple choice
d. Given an operational TMA, define Amount of Delay Taken (AMDT) with at least 70% accuracy.	1) AMDT definition 2) How to access AMDT (TMA Operator's Manual, p. 165, Sec. 7.4.4)	ILT	C	Multiple choice
e. Given an operational TMA, define Single Gate Free Flow (SGFF) with at	1) The third of three Gate and MFX parameters 2) Located in the Status and	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
least 70% accuracy.	Schedule window (TMA Operator's Manual, p. 159, Sec. 7.4.3.1)			
f. Given an operational TMA, define Free Flow Parameter (FFP) with at least 70% accuracy.	<ol style="list-style-type: none"> 1) The Free Flow Parameter dialogue allows for the minimum delay that a SGFF aircraft must have to qualify for scheduling preference over a non-SGFF aircraft 2) The value is expressed as a percentage, and applied to each aircraft's TRACON buffer <ol style="list-style-type: none"> a) 0% leaves no gaps in the runway schedule - the SGFF aircraft will receive preference when it schedules behind the aircraft directly ahead of it on the runway at the minimum separation that will meet the runway constraints b) At 70%, the SGFF aircraft will receive preference when its total runway delay equals its TRACON 	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	buffer (TMA Operator's Manual, p. 165, Sec. 7.4.4)			
Development Notes:				
Review Comments:				

Lesson: Communicating Anomalies	Topic: Options and Processes to Communicate Anomalies	Time: 3 hours
Training Outcome II: Upon completion of this lesson, you will be able to perform the steps required to communicate anomalies on an operational TMA.		

TLO 50: Given an anomaly on an operational TMA, you will be able to perform the steps required to communicate the issue to the designated point of contact in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, summarize what information needs to be communicated to CPCs with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Details to be relayed to the Supervisor 2) Supervisor hands the information to the TMC 3) TMC would either resolve the issue or escalate it to the Cadre <ol style="list-style-type: none"> a) If resolved, he reports actions taken to the Supervisor and any actions the controller needs to take b) If unresolved inform the Supervisor the issue is being escalated and what action the CPC should take 4) The Cadre would inform the CPC's Supervisor on action taken to resolve the issue 	ILT	C	Multiple choice
b. Given the identification of an anomaly, describe	<ol style="list-style-type: none"> 1) Data regarding the anomaly is collected 	ILT	C	Multiple choice

TLO 50: Given an anomaly on an operational TMA, you will be able to perform the steps required to communicate the issue to the designated point of contact in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
the process to file tickets with at least 70% accuracy.	2) Data is giving to the Cadre 3) Cadre then enters a site report which is sent to the technician			
c. Given the identification of an anomaly, use the Print Screen button to capture a screen shot in accordance with the performance criteria checklist.	1) Print the current screen a) Place cursor in desired display b) Press Print Screen and left click mouse 2) Send GUI screen shot and description for analysis to WJHTC a) Place cursor in desired display b) Press Shift + Print Screen and left click mouse (TMA Operator's Manual, p. 70, Sec. 4.2.2)	ILT	p	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 18: Procedures

Lesson: Procedures	Topic: TMA Procedures	Time: 8 hours
Training Outcome JJ: To be determined upon national TMA procedure acceptance.		

TLO 51: To be determined upon national TMA procedure acceptance.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. To be determined upon national TMA procedure acceptance.	1) To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.
Development Notes:				
Review Comments:				

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Course Title: Traffic Management Advisor (TMA) for TMC Terminal

Course Goal(s): The goals of this course are for the learner to be able to describe how TMA is used to manage metering and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to their job duties.

WBT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 35 minutes
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used f) Hardware and software versions	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	WBT ILT refresher	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	WBT ILT refresher	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary	WBT ILT refresher	C	Multiple choice
Development Notes:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data display i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The	WBT	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90</p> <p>c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA)</p> <p>d) Scheduling factors</p> <p>e) Scheduling constraints</p> <p>2) Explain the efficiency gained by using TMA</p>			
Development Notes:				
Review Comments:				

WBT Module 2: GUI Features

Lesson: TMA GUI Features	Topic: GUI Features and Functionality	Time: 20 minutes
Training Outcome B: Upon completion of this lesson, you will be able to explain each of the Graphical User Interface (GUI) components of the TMA in an operational environment.		

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify a main component of the TMA in accordance with at least 70% accuracy.	1) TGUI 2) PGUI (TMA Operator's Manual, pp. 26 - 28)	WBT ILT refresher	C	Multiple choice
b. Given access to a TGUI environment, describe the TGUI features with at least 70% accuracy.	1) Features overview (TMA Operator's Manual, pp. 26 - 27)	WBT ILT refresher	C	Multiple choice
c. Given a review of the TMA GUI features, identify the features with at least 70% accuracy.	1) Application Window 2) Active Window 3) Dialog Box 4) Window Tiling 5) Minimizing a window 6) Optional Window Components/Menu Bar 7) Push Buttons 8) Check Buttons 9) Choice Buttons 10) Radio Buttons	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	11) Spin Buttons 12) Display Buttons 13) Slider Bar 14) Text Entry Fields			
d. Given access to an operational TMA, define the manual functionality terms with at least 70% accuracy.	1) Keyboard actions a) M key b) Shift M c) Control E d) Control Shift G e) Toggle F7 2) Mouse terminology a) Click b) Click, hold, drag c) Double-click d) Middle-click e) Right-click f) Shift-click g) Dwell	WBT ILT refresher	C	Matching Interaction
e. Given an operational TMA, explain the difference between Rescheduling and Broadcast with at least 70% accuracy.	1) Define: a) Rescheduling b) Broadcast 2) Give an example of the difference between Rescheduling and Broadcast 3) The difference is that reschedule does not always broadcast. There are two functionalities; one requires	WBT ILT refresher	C	Multiple choice

TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>two steps, the second is a single option that automatically broadcasts the reschedule</p> <p>4) Need to review changes prior to broadcast to ensure data is correct and anomalies are not created (delay)</p> <p>5) Identify what triggers reschedule and broadcast in same function</p> <p>6) Manually scheduled aircraft will be intentionally left out of the reschedule and broadcast if not selected</p> <p>7) Know when to reschedule and when not to reschedule</p>			
Development Notes:				
Review Comments:				

Lesson: PGUI vs. TGUI	Topic: Difference Between GUI Components	Time: 15 minutes
Training Outcome C: Upon completion of this lesson, you will be able to access each of the GUI components of the TMA in an operational environment.		

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TGUI environment, access the TGUI components in accordance with the performance criteria checklist.	1) Timelines a) Access the component b) Explain its purpose 2) Graphs a) Access the component b) Explain its purpose 3) Symbols a) Access the component b) Explain its purpose 4) Alert notices a) Access the component b) Explain its purpose (TMA Operator's Manual, pp. 38 – 59)	WBT ILT refresher	P	Performance assessment Simulation
b. Given access to a PGUI environment, access the PGUI components in accordance with the performance criteria checklist.	1) Aircraft Symbols a) Access the component b) Explain its purpose 2) Datablocks a) Access the component b) Explain its purpose 3) Waypoint Symbols a) Access the component	WBT ILT refresher	P	Performance assessment Simulation

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	b) Explain its purpose 4) PGUI Clock a) Access the component b) Explain its purpose 5) PGUI Scratch Pad/Message Area a) Access the component b) Explain its purpose 6) Range Rings a) Access the component b) Explain its purpose 7) Timelines a) Access the component b) Explain its purpose 8) Sequence List a) Access the component b) Explain its purpose 9) Pointer a) Access the component b) Explain its purpose 10) Function Keys a) Access the component b) Explain its purpose 11) Action Keys a) Access the component b) Explain its purpose 12) Default Files a) Access the component			

TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	b)Explain its purpose (TMA Operator's Manual, pp. 63 - 72)			
Development Notes:				
Review Comments:				

WBT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 15 minutes
Training Outcome D: Upon completion of this lesson, you will be able to explain the TGUI display tags and symbols on the TMA in an operational environment.		

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, discuss how the timeline is formatted with color with at least 70% accuracy.	1) Overview of TMA TGUI Display a) TGUI Display at Startup b) Timeline Overview c) Timeline Elements d) Meter Fix Arcs e) TMA Scheduler f) ETA Aircraft Tags g) STA Aircraft Tags and Freeze Horizons h) Timeline Sides i) On Schedule, Delay, and Advance j) Departure Timelines k) Timesharing l) Load Graphs and Forecast Traffic m) Load Graph Display n) Reading Load Graphs o) Reading Lines	WBT ILT refresher	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>(TMA Operator's Manual, pp. 38 - 55)</p> <p>2) Arrival Timeline</p> <ul style="list-style-type: none"> a) Green tags = ETA b) Yellow tags = unfrozen STA c) Blue tags = frozen STA d) Light blue STA (adapted color) = Open Slot e) White tags = proposed MFX f) Green STA = scheduled departures not yet departed g) Red STA (adapted color) = Locally Departed flight h) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color) i) Plum tags = proposed STA of an internal departure <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p> <p>3) Departure Timeline</p> <ul style="list-style-type: none"> a) Green tags = proposed 			

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>departure time</p> <p>b) Yellow tags = manually scheduled time of departures</p> <p>c) Orange tags = internal departures not departed on schedule, or planned departure affected by change in EDCT status (adapted color)</p> <p>d) Plum tags = proposed STA of an internal departure</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>			
b. Given a TGUI, identify components of aircraft tag data on the list with at least 70% accuracy.	<p>1) Aircraft tag color</p> <p>a) Green</p> <p>b) Yellow</p> <p>c) Blue</p> <p>d) Blue (adaptable color)</p> <p>e) Light Blue (adaptable color)</p> <p>f) Orange (adaptable color)</p> <p>g) White</p> <p>h) Plum</p> <p>i) Red (adaptable color)</p> <p>j) Delay Notation (color-coded value)</p> <p>2) Destination airport symbol (FAST SME would do this. If</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>TMA is only adapted for a single airport within a TRACON group, then the option to turn the symbol on is unavailable)</p> <p>3) Size symbol</p> <ul style="list-style-type: none"> a) Boeing 757 b) Super Heavy c) Heavy d) Large e) Small <p>(TMA Operator's Manual, pp. 40 – 43, Sec. 3.1.3)</p>			
c. Given a TGUI display, discuss how the scheduled time of arrival (STA) side of a timeline can be changed to ripple the list with at least 70% accuracy.	<p>1) Delay value (color change when building up traffic demand)</p> <p>2) Blocked Interval</p> <p>3) Add slots</p> <p>4) Matrix setting (separate these out)</p> <p>5) AMDT</p> <p>(TMA Operator's Manual, p. 39, Figure 3-2)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
d. Given a TGUI display, discuss how the STA side of a timeline can be configured with at least 70% accuracy.	<p>1) Font size</p> <p>2) Freeze Horizon</p> <p>3) Length (15 to 90 minutes)</p> <p>4) Reference (runway threshold, departure airport, arcs, etc.)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	5) Timeline/Gap offset (optional) (TMA Operator's Manual, p. 40, Table 3-1)			
e. Given an operational TMA, explain what a non-controlling TGUI is with at least 70% accuracy.	1) A TGUI that has been configured as a controlling TGUI on the M&C can have its capabilities limited through adaptation, resulting in a partially controlling TGUI. A partially controlling TGUI is primarily used by adjacent facilities to schedule departures. This adaptation is done through the M&C Setup by the facility ATSS 2) Similarities with TGUI a) Look b) Control of display features c) Status and Schedule Window 3) Differences a) No control of traffic or airspace b) No ability to change operative features controlling traffic c) No aircraft scheduling features	WBT ILT refresher	C	Multiple choice

TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	d)No Apply button functionality (TMA Operator's Manual, p. 61, Sec. 3.3)			
f. Given an operational TMA, explain what a partially controlling TGUI is with at least 70% accuracy.	1) Used by adjacent facilities to schedule departures 2) Can be configured to: a) Allow users to swap STAs b) Manually schedule active aircraft that have been adapted for control c) Allow user to switch aircraft between meter/fix arcs that a site has control over 3) User cannot modify settings 4) No Apply button functionality (TMA Operator's Manual, p. 61, Sec. 3.4)	WBT ILT refresher	C	Multiple choice
g. Given an operational TMA, identify the reference point for the timeline with at least 70% accuracy.	1) TGUI a) Timeline Controls b) Timeline Pop-Up Menu	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 4: PGUI Displays

Lesson: PGUI Display	Topic: PGUI Display Options	Time: 20 minutes
Training Outcome E: Upon completion of this lesson, you will be able to identify the PGUI display map and features on the TMA in an operational environment.		

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify a map feature on an operational TMA with at least 70% accuracy.	1) Full Center airspace radar map (default map) 2) Features a) Aircraft symbols b) Aircraft identifiers c) Datablocks d) Waypoint Symbols e) PGUI Clock f) PGUI Scratch Pad/Message Area g) Range Rings h) Timelines i) Sequence List j) Pointer k) Function Keys l) Default Files	WBT ILT refresher	C	Multiple choice
b. Given a PGUI display, identify the Map Options panel on an operational TMA with at least 70%	1) Full Center airspace radar map (default map) 2) F3 key	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.				
c. Given a PGUI display, describe a Datablock with at least 70% accuracy.	1) Datablock associated with a sample aircraft 2) Three lines of data a) Aircraft ID with size designation b) Assigned runway, Assigned altitude, and/or actual altitude c) Ground speed and HOST sector ID	WBT ILT refresher	C	Multiple choice
d. Given a PGUI display, identify the General Setup Options with at least 70% accuracy.	1) Keyboard 2) F2 key	WBT ILT refresher	C	Multiple choice
e. Given a PGUI display, explain range rings with at least 70% accuracy.	1) Definition: help determine aircraft distances from particular points 2) Map Options panel configuration options a) Radii b) Number of rings c) Range ring boxes	WBT ILT refresher	C	Multiple choice
f. Given a PGUI display, identify the Front key with at least 70% accuracy.	1) Rather than viewing both the TGUI and the PGUI on the same monitor by sizing and moving the displays to occupy different halves of the screen,	WBT ILT refresher	C	Multiple choice

TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>it is possible to bring up both displays on the same monitor, with each filling out the entire screen, but with one display being in front of the other. The back or hidden display can be brought to the front and made visible by toggling the Front key</p> <p>2) Keyboard</p> <p>3) Can access either the PGUI and TGUI</p>			
Development Notes:				
Review Comments:				

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 45 minutes
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a runway maintenance issue, identify the method to schedule a blocked interval with at least 70% accuracy.	1) Scenario for needed runway maintenance; snowfall requires the need to block a runway for one hour 2) Concept of blocking a runway for a specified time. 3) Steps required to insert a blocked interval a) MFX blocked interval b) THD blocked interval 4) Modifying and removing blocked intervals (TMA Operator's Manual, pp. 168 - 175)	WBT ILT refresher	C	Multiple choice
b. Given the F1 Panel, identify the Separation Matrix with at least 70%	1) Configuration and Runway Settings dialog box 2) Set Defaults	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
accuracy.	a) The Separation Matrix determines the minimum spacing between two types of aircraft approaching a runway threshold b) The Separation Matrix is a square matrix with rows (Ahead) and columns (Behind)			
c. Given an expanded Status and Schedule window, explain when to specify which airport's aircraft to reschedule with at least 70% accuracy.	1) Satellite airport configurations - when change the configuration at the main airport, it changes the configurations at the satellite airport 2) The default setting is set to Off 3) Affects the departure scheduling	WBT ILT refresher	C	Multiple choice
d. Given an expanded Status and Schedule window, identify the Control functions option with at least 70% accuracy.	1) Control button functions are located in the upper left area of the window	WBT ILT refresher	C	Multiple choice
e. Given an expanded Status and Schedule window, identify the	1) Status and Schedule Window 2) Display function button is located in the upper left	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Display function button with at least 70% accuracy.	corner of the window			
f. Given an operational TMA, identify the F4 panel with at least 70% accuracy.	1) F4 key 2) Internal Departures Window	WBT ILT refresher	C	Multiple choice
g. Given an expanded Status and Schedule window, identify the Configuration and Runway Settings option with at least 70% accuracy.	1) Status and Schedule Window 2) Configuration and Runway Settings option is a button on the right side of the window	WBT ILT refresher	C	Multiple choice
h. Given a line of arrivals, identify how a call for release within the freeze horizon populates the TMA schedule with at least 70% accuracy.	1) Because the aircraft is within the freeze horizon, high probability of a delay 2) Can freeze at an identified time so more delays are not caused 3) Take majority of the delay on the ground instead of the air because it's easier to hold them on the ground than to put them in a holding pattern in the air	WBT ILT refresher	C	Multiple choice
i. Given an operational TMA, identify actions for	1) Internal departures schedule 2) When TMA is updated, delays	WBT	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
which a Broadcast is required with at least 70% accuracy.	on TGUIs will be updated which are different than the delays on controller scopes 3) Broadcast is needed so that revised TMA times are displayed on controller scopes	ILT refresher		
j. Given a line of arrivals, explain how to use the F4 panel to schedule internal departures with at least 70% accuracy.	1) F4 key 2) Example is that the aircraft might not be to the freeze horizon yet	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments: NEED SME TECHNICAL INPUT - ELO h may need to be covered as performance based. (FAA)				

Lesson: Use of the Status and Schedule Window	Topic: Status and Schedule Window Scheduling parameters	Time: 3 minutes
Training Outcome G: Upon completion of this lesson, you will be able to discuss the HOST/ En Route Automation Modernization (ERAM)/ARTS connection on a TMA in an operational environment.		

TLO 9: Given an operational TMA, you will be able to discuss the HOST/ERAM/ARTS connection with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the HOST/ERAM/ARTS connection with at least 70% accuracy.	<ol style="list-style-type: none"> 1) A button on the upper part of the Status and Schedule window, the HOST/ERAM-Interface Controls, controls the connection to the HOST computer or ERAM 2) TMA is always receiving data from the HOST or ERAM 3) F8 panel shows which connections are activated or inactive 4) The connection status of all TRACON data feeds is displayed on the PGUI TRACON Connection Status (F8) panel 5) The panel pops up when there is a change in any of the TRACON connections if the Popup Window on Status Changed checkbox is selected 	ILT	C	Multiple choice

TLO 9: Given an operational TMA, you will be able to discuss the HOST/ERAM/ARTS connection with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 129, Sec. 7.1.2 and Fig. 18-1)			
Development Notes:				
Review Comments:				

WBT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Data Identification	Topic: Aircraft Scheduling Data	Time: 30 minutes
Training Outcome H: Upon completion of this lesson, you will be able to explain aircraft scheduling data on a TMA in an operational environment.		

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the impact of assigning runways with at least 70% accuracy.	1) Runway after aircraft proceeds over various fixes 2) Reasons why you might change the default runways for an aircraft a) Runway congestion b) Weather c) Suspended aircraft	WBT ILT refresher	C	Multiple choice
b. Given an operational TMA, explain the impact of allocating runways with at least 70% accuracy.	1) Numbers may be impacted 2) TMA automatically adjusts runways based on manual data inputs; TMA may adjust numbers	WBT ILT refresher	C	Multiple choice
c. Given an operational TMA, identify the Schedule Aircraft pop-up menu with at least 70% accuracy.	1) Place the pointer on the aircraft tag and right click 2) Hold down the right mouse button 3) The order of pop-up menu options can be controlled by	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	adaptation 4) Sub-menu options for an aircraft are enabled or disabled in adaptation (TMA Operator's Manual, Sec. 8.2, p. 216)			
d. Given a Schedule Aircraft pop-up menu, identify the reschedule commands with at least 70% accuracy.	1) How the reschedule commands can be accessed 2) Commands include a) All aircraft b) All and Broadcast to reschedule and update c) ACID and After to reschedule on the STA timeline d) ACID only to reschedule only the aircraft or blocked slot e) All except manually scheduled for STAs that will be locked f) All except manually scheduled and Broadcast for STAs that will be locked g) ACID and After except manually scheduled for	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	STAs that will be locked (TMA Operator's Manual, pp. 216 - 217, 219, Secs. 8.2 and 8.2.1)			
e. Given a Schedule Aircraft pop-up menu, identify the Broadcast commands with at least 70% accuracy.	1) How the broadcast commands can be accessed 2) Commands include a) All aircraft b) All and Broadcast to reschedule and update (TMA Operator's Manual, pp. 216 - 217, 220, Secs. 8.2 and 8.2.2)	WBT ILT refresher	C	Multiple choice
f. Given a Status and Schedule window, identify aircraft data for a pre-identified flight with at least 70% accuracy.	1) How to access aircraft data a) Double click on an Aircraft Tag (ACID) on an arrival timeline i) Or enter Control A ii) Or choose Aircraft Data from the Display pull-down menu b) The Aircraft Data for dialog box will appear c) Enter the Flight ID in the window d) Select the Update push	WBT ILT refresher	C	Multiple choice

TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	button (TMA Operator's Manual, pp. 247 - 251, Sec. 8.6)			
g. Given a Status and Schedule window, identify the proposed departure flights within a Center/TRACON controlled airport with at least 70% accuracy.	1) Steps to display the window 2) Identify the aircraft	WBT ILT refresher	C	Multiple choice
h. Given a TGUI, describe what working with blocked time slots means with at least 70% accuracy.	1) Hold a place in the schedule for a single aircraft, whether unscheduled or currently outside the system 2) Represent the aircraft's ETA 3) Cause other aircraft to be scheduled around the slot depending on the aircraft and slot characteristics (TMA Operator's Manual, p. 263, Sec. 8.9)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 7: Additional Features

Lesson: TGUI Features	Topic: TGUI Features	Time: 30 minutes
Training Outcome I: Upon completion of this lesson, you will be able to describe TGUI features on a TMA in an operational environment.		

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, list the Help functions with at least 70% accuracy.	1) Help key 2) A secondary dialog, Help Index and Search, is also available from the main dialog, On-Line Help (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
b. Given a TGUI display, identify the Quick Key commands with at least 70% accuracy.	1) Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key <ul style="list-style-type: none"> a) C b) F c) R d) T e) U f) X g) Z 	WBT ILT refresher	C	Multiple choice

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 266, Sec. 9.1)			
c. Given a TGUI display, identify the Broadcast Status Indicator option with at least 70% accuracy.	1) Control + D	WBT ILT refresher	C	Multiple choice
d. Given a TGUI display, identify the Weather Input Options and System Parameters option with at least 70% accuracy.	1) Accessed by Control W 2) The Weather Input and System Parameters dialog box appears (TMA Operator's Manual, p. 266, Sec. 9.1)	WBT ILT refresher	C	Multiple choice
e. Given extreme weather conditions, explain when it is appropriate to use Miles in Trail for spacing rather than TMA with at least 70% accuracy.	1) It is not appropriate to use TMA when CPC's would be unable to perform TBFM due to deviations	WBT ILT refresher	C	Multiple choice
f. Given a complete arrival and departure list in TMA, describe the effects of changing weather conditions in accordance with at least 70% accuracy.	1) Impacts runways 2) Arrival fixes 3) Airspace impacts 4) Change in arrival rate 5) Departure airports may be impacted	WBT ILT refresher	C	Multiple choice
g. Given a need to reduce traffic complexity,	1) Explain what a blocked slot is 2) Add block slots for	WBT	C	Multiple choice

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
describe when it is appropriate to add blocked slots with at least 70% accuracy.	maintenance flights, emergencies, or other related reasons to minimize impact to the NAS 3) Provide explanation of how to add the slot	ILT refresher		
h. Given a need for additional tools, describe what tools work well with TMA with at least 70% accuracy.	1) FSM (including monitoring alerts, weather displays, etc.) 2) FEA (Flow Evaluation Area) 3) Facility meteorologist 4) CIWS (weather) 5) COSPA (weather) 6) ITWS (weather) 7) RAPT (weather)	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 3: Timeline Graphical User Interface (TGUI) Displays

Lesson: TGUI Display	Topic: Colored Tags and Symbols	Time: 1 hour
Training Outcome K: Upon completion of this lesson, you will be able to manipulate the TGUI display colored tags and symbols on the TMA in an operational environment.		

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to a TMA, identify the need to set up a non-controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the Monitor and Control (M&C) Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.3)	ILT	C	Multiple choice
b. Given access to a TMA, identify the need to set up a partially controlling TGUI with at least 70% accuracy.	1) This adaptation is done through the M&C Setup by the facility ATSS (TMA Operator's Manual, p. 61, Sec. 3.34)	ILT	C	Multiple choice
c. Given a TGUI, use pointer and interactive keys/elements to obtain Air Traffic Control (ATC) operations information in accordance with the performance criteria	1) Interacting with the TGUI a) Using the Pointer b) Function Keys c) TGUI Quick Action Keys d) TGUI Hot Keys 2) Non-controlling TGUI 3) Partially Controlling TGUI	ILT SBL	P	Performance assessment

TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
checklist.				
Development Notes:				
Review Comments:				

ILT Module 4: PGUI Displays

Lesson: Timeline Setup Window Manipulation	Topic: Timeline Setup Window	Time: 3 hours
Training Outcome L: Upon completion of this lesson, you will be able to manipulate the features of the PGUI to control the graphical representation of data on the TMA in an operational environment.		

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the Researcher Control panel to change content of a Datablock in accordance with the performance criteria checklist.	1) Use the F11 key to open the Researcher Control panel 2) Select the Datablock Options Panel 3) Manipulate Datablock data options and display configuration	ILT SBL	P	Performance assessment
b. Given a PGUI display, use the Map Options panel to identify the aircraft symbols in accordance with the performance criteria checklist.	1) Use the F3 key to open the Map Options panel 2) Definitions of four symbols a) Diamond: aircraft following its filed route b) Triangle: aircraft not following its filed route c) Pound sign: HOST radar is coasting the aircraft d) At sign: No radar tracks received by TMA for	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	several radar sweeps			
c. Given a PGUI display, use the Map Options panel to show TMA-defined waypoint names as a group in accordance with the performance criteria checklist.	1) Use the F3 key to open the Map Options panel 2) Choose TMA waypoint display option Group	ILT SBL	P	Performance assessment
d. Given a PGUI display, use the General Setup Options to show the current universal time in accordance with the performance criteria checklist.	1) Use the F2 key to open the General Setup Options panel 2) Choose PGUI clock display option	ILT SBL	P	Performance assessment
e. Given a PGUI display, use the General Setup Options to show the scratch pad/message area in accordance with the performance criteria checklist.	1) Use the F2 key to open the General Setup Options panel 2) Choose scratch pad display option a) Left scratch pad box: used in TRACON for runway assignment b) Right scratch pad box: used only in development simulations for sector handoff data entry c) Option may not be	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	available at all TRACONS			
f. Given a PGUI display, use the Map Options to manipulate the range rings by entering values in the boxes in accordance with the performance criteria checklist.	1) Use the F3 key to open the Map Options panel 2) Enter values in the range ring boxes a) Radii value b) Number of rings	ILT SBL	P	Performance assessment
g. Given a PGUI display, change the timeline from the left side to the right side in accordance with the performance criteria checklist.	1) Toggle the backslash key on the key pad (with Num Lock off) 2) Shift the timeline between the left and right sides of the display	ILT SBL	P	Performance assessment
h. Given a PGUI display, show the Sequence List display in accordance with the performance criteria checklist.	1) Open a PGUI display 2) A text-based Sequence List will appear	ILT SBL	P	Performance assessment
i. Given a PGUI display, use the functions to interact with the display as directed to obtain information for ATC operations in accordance with the performance	1) Open the Sequence List 2) Click on the Call Sign, drops to Analysis (three sub-options) a) Show Route Analysis Route b) Show Flight Plan Route	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
criteria checklist.	c) Show HOST AK Route (current flight plan route that TMA has from HOST)			
j. Given a monitor with a TGUI display and a monitor with a PGUI display, select the option to view both TGUI and PGUI displays on one monitor, in accordance with the performance criteria checklist.	1) To view both GUI displays on one monitor, resize the GUIs using the pointer 2) An available function that is not used everywhere 3) Window Focus tool is used similar to Front Key a) Developed by second level support b) Available to all, based upon Tech Ops knowledge c) This option must be adapted by the facility ATSS	ILT SBL	P	Performance assessment
k. Given one monitor with both a TGUI and a PGUI display, use the pointer to resize a GUI display in accordance with the performance criteria checklist.	1) Open a PGUI and TGUI on one monitor 2) Using the mouse, move the pointer to dwell on a PGUI display corner 3) Resize the display	ILT SBL	P	Performance assessment
l. Given one monitor with both a TGUI and a PGUI display, use the Front key to toggle the TGUI	1) Open a PGUI and TGUI on one monitor 2) Use the Front Key to toggle the displays	ILT SBL	P	Performance assessment

TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
and PGUI displays on the monitor in accordance with the performance criteria checklist.				
m. Given a PGUI display, use the Map Options panel to customize map views in accordance with the performance criteria checklist.	1) Use the F3 key to open the Map Options panel 2) Choose the map customization view	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 4 hours
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the acceptance rate using the graph with at least 70% accuracy.	1) TMC creates the TRACON acceptance rate graph 2) Generally, time is on the X-axis and the acceptance rate is on the Y-axis	ILT Small group discussion	C	Multiple choice
b. Given access to an operational TMA, explain what the TRACON acceptance rate can be used for with at least 70% accuracy.	1) TRACON acceptance rate is the maximum number of aircraft per hour that the TRACON will accept under the present conditions 2) Can be used to revise the rate per hour 3) Currently, this is not used regularly in the field, if at all. It is set to Unrestricted Rate (UR)	ILT Small group discussion	C	Multiple choice
c. Given an adapted TMA, identify whether the set	1) Default graphs are set up a) One default is the	ILT	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
up was correct or incorrect after reviewing the graph with at least 70% accuracy.	<p>TRACON acceptance rate graph (demand graph with the number of aircraft at any time)</p> <p>b) Second default is the average delay graph</p> <p>2) Review a default graph and compare to the TGUI timeline to determine if it was set up correctly</p> <p>3) Excessive demand may require another tool to support TMA (may have to use ground delay program, ground stop or something else) as the system is not always a standalone tool</p> <p>4) Can use a scan technique to use FSM, which can tell a TMC when to stop metering</p>	Small group discussion		
d. Given a sample airport demand on TMA, identify the average delay graphs for metering in accordance with at least 70% accuracy.	1) Average delay graph display	ILT	C	Multiple choice
e. Given access to an operational TMA,	1) Blocked interval indicates Meter Fixes or Runways	ILT	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
describe what a blocked interval is with at least 70% accuracy.	<ul style="list-style-type: none"> affected 2) Shows interval start and end times on a timeline 3) Referred to as MFX (Meter Fix) and THD (Runway Threshold) 	Small group discussion		
f. Given access to an operational TMA, explain what buffers are with at least 70% accuracy.	<ul style="list-style-type: none"> 1) Types of buffers: <ul style="list-style-type: none"> a) TRACON b) Time c) Matrix d) Departure 	ILT Small group discussion	C	Multiple choice
g. Given access to an operational TMA, explain what RMD is with at least 70% accuracy.	<ul style="list-style-type: none"> 1) Route Maximum Delay: maximum amount of delay that can be absorbed in the TRACON airspace for a given route <ul style="list-style-type: none"> a) Meter fix to Runway - VFR b) Meter fix to Runway - IFR RMD is hardcoded in adaptation; not adjustable by the TMC c) TRACON buffer is usually set high 2) The TMA system reviews both RMD and TRACON buffer to calculate the amount of delay to the TRACON and will choose the lower of the two 	ILT Small group discussion	C	Multiple choice

TLO 15: Given access to an operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	values 3) RMD affects the amount of delay assigned to the TRACON (that it can absorb)			
h. Given an operational TMA, explain how the buffers and RMD affect scheduling with at least 70% accuracy.	1) Effect TMA scheduling and delay assignments 2) The amount of delay that the TRACON absorbs is the lesser of the buffer and RMD values 3) "Don't set it and forget it"	ILT Small group discussion	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given airport capacity information, describe conditions under which TMA might be initiated TMA with at least 70% accuracy.	1) When an airport gets too close to capacity, then it is time to start using TMA 2) Airport capacity is the runway acceptance rate 3) Some centers will run TMA at 60% capacity, others at 70% or 90% 4) Also depends on how the	ILT Small group discussion	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	aircraft are spread out and where delays are - Will turn TMA On or Off based upon the average delays which are determined using graphs			
b. Given an operational TMA, identify the fleet mix with at least 70% accuracy.	1) TGUI timeline 2) Types of aircraft: a) Boeing 757 b) Super Heavy c) Heavy d) Large e) Small	ILT Small group discussion	C	Multiple choice
c. Given an operational TMA, identify various stream classes with at least 70% accuracy.	1) Stream class is the sequencing of similar aircraft into a traffic flow 2) Types a) Future b) EDC c) TBFM (TMA Operator's Manual, p. 45, Sec. 3.1.6)	ILT Small group discussion	C	Multiple choice
d. Given the EDC tool, explain what a traffic flow is with at least 70% accuracy.	1) Traffic flow describes the aircraft that are departing from or bound for an airport 2) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides	ILT Small group discussion	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	meter points further out from the meter fixes at the TRACON boundary (TMA Operator's Manual, p. 388, Sec. C.1)			
e. Given a low average TBFM delay assigned by TMA, identify when it is appropriate to terminate TBFM with at least 70% accuracy.	1) When to terminate TBFM differs from center to center a) Some facilities use TMA all day (never turn it off) b) Other facilities have policy to use it only when it's necessary (the TMC's decision)	ILT Small group discussion	C	Multiple choice
f. Given TBFM, describe at least two conditions under which TBFM should be stopped and TMA turned off with at least 70% accuracy.	1) No airplanes 2) Low demand 3) Low average delay	ILT Small group discussion	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the end of a TBFM session, explain when it is unnecessary to meter with at least 70% accuracy.	1) TMIs description and list 2) When a meter session ends, need to associate different tools 3) When metering would be initiated or discontinued, recognize when to use ground stop 4) When ending a metering session using TMA, need to know when to start the TMI initiative 5) Don't meter when don't have to do so	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an adapted TMA, explain what the Meter Fix Speed is with at least 70% accuracy.	1) It is a pre-adapted value 2) Aircraft has to cross the meter fix at a given altitude and a given speed (pre-adapted in local facility adaptation)	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) TMA uses this value to set scheduling and ETAs 4) Adapted speeds need to be communicated to all affected TMC and ATCS users of the system			
Development Notes:				
Review Comments:				

Lesson: Use of the Status and Schedule Window (continued)	Topic: Status and Schedule Window Scheduling parameters	Time: 7 hours
Training Outcome O: Upon completion of this lesson, you will be able to use the Status and Schedule window to configure scheduling parameters on a TMA in an operational environment.		

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule	1) The steps to set the future TRACON parameters:	ILT	C	Multiple choice

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
<p>window, explain the steps to set the future TRACON parameters with at least 70% accuracy.</p>	<p>a) Select the TAR1 button to open the Future TRACON Acceptance Rate Data dialog box</p> <p>b) Use the arrows to modify the TRACON Acceptance Rate</p> <p>c) Specify the time at which the change will take place using the arrows next to the Specify UTC Activation Time box</p> <p>d) Select the Include manually scheduled aircraft check button</p> <p>e) Click on the Apply button</p> <p>(TMA Operator's Manual, p. 185, Sec. 7.7.1)</p>			
<p>b. Given access to an operational TMA, construct the TRACON acceptance rate graph in accordance with the performance criteria checklist.</p>	<p>1) Can be used as a tool to display the TRACON acceptance</p> <p>2) Can tell when need to meter and when not to meter</p> <p>3) Excessive demand may require another tool to support TMA (may have to use ground delay program,</p>	<p>ILT</p> <p>SBL</p>	<p>P</p>	<p>Performance assessment</p>

TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	ground stop or something else) as the system is not always a standalone tool 4) Can use a scan technique to use FSM, which can tell a TMC when to stop metering			
Development Notes:				
Review Comments:				

TLO 22: Given a Status and Schedule window, you will be able to explain the steps to set the MFX parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, explain the steps to set the future Gate and Meter Fix parameters with at least 70% accuracy.	1) The steps to set the future Gate and Meter Fix parameters: a) Select Rate 1 to open the Future Gate and MFX Acceptance Rate dialog box b) Specify the time at which the change will take place in the Specify UTC Activation Time box using the up and down arrows next to the box c) Select the Include	ILT	C	Multiple choice

TLO 22: Given a Status and Schedule window, you will be able to explain the steps to set the MFX parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>manually scheduled aircraft check button located below the UTC Activation Time box to have aircraft rescheduled when the new limits are applied</p> <p>d) Click on Apply to make the changes or Close</p> <p>e) Select Streams1 from the expanded Status and Schedule window to open the Future Stream Class dialog box</p> <p>f) Enter the values individually for each super stream in each Gate</p> <p>i) Or set values for super streams using shortcut text that describes the super streams to be modified</p> <p>ii) Or accept the default values by clicking on the Set Defaults button</p> <p>g) If multiple arrival airports exist, toggle buttons will be shown to specify which</p>			

TLO 22: Given a Status and Schedule window, you will be able to explain the steps to set the MFX parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>airports' stream class should be set</p> <p>h) Specify the time at which the change will take place with the addition of Activation Time</p> <p>i) Stream Class Miles-in-Trail (MiT) restrictions are set for individual super streams. A super stream represents flows of aircraft that are scheduled together as a single stream, and is defined as a combination of stream classes. Stream classes define which aircraft are always grouped together based on different criteria (e.g., meter fix, arrival airport, and engine type) and are defined in adaptation. Super streams are defined in adaptation and can also be created dynamically by the user. The dialog provides multiple mapping sets,</p>			

TLO 22: Given a Status and Schedule window, you will be able to explain the steps to set the MFX parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>each one providing different combinations of stream classes into super streams. By applying a specific mapping set, the user can cause different flows of aircraft to be scheduled together</p> <p>(TMA Operator's Manual, pp. 154 - 156, 188, Secs. 7.4.2 and 7.8.2)</p>			
Development Notes:				
Review Comments:				

TLO 23: Given an operational TMA, you will be able to demonstrate techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, identify techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with	<p>1) Options the controller has to make</p> <p>2) Controller sees the list and number on the scope and determines the appropriate action to take to meet criteria</p> <p>3) These are only suggested</p>	ILT	C	Multiple choice

TLO 23: Given an operational TMA, you will be able to demonstrate techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
at least 70% accuracy.	ways to handle delay but there may be other mitigating factors a) Speed (1 - 3 minutes) b) Speed and Vectors (4 - 6), Spin (6+)			
b. Given an operational position and a meter list, administer control instructions to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with the performance criteria checklist.	1) Monitor and comply with crossing times provided by adjacent center metering (ACM)/traffic management advisor (TMA) 2) Demonstrate techniques to meet times	ILT	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule	1) Special Use Airspace from the Control pull-down menu,	ILT	C	Multiple choice

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
<p>window, identify the Control function to choose Special Use Airspace with at least 70% accuracy.</p>	<p>or press Control U</p> <p>2) Special Use Airspace dialog box</p> <p>(TMA Operator's Manual, pp. 202 - 203, Sec. 7.9.7)</p>			
<p>b. Given an expanded Status and Schedule window, use the Control function to choose Find Aircraft in accordance with the performance criteria checklist.</p>	<p>1) @ (Shift 2)</p> <p>2) Open Find Aircraft dialog</p> <p>(TMA Operator's Manual, p. 58, Sec. 3.2.4)</p>	SBL	P	Performance assessment
<p>c. Given an expanded Status and Schedule window, use the Control function to choose Airport Configuration Summary in accordance with the performance criteria checklist.</p>	<p>1) Press F7</p> <p>2) Open Airport Configuration Summary window</p> <p>(TMA Operator's Manual, p. 56, Sec. 3.2.2)</p>	SBL	P	Performance assessment
<p>d. Given an expanded Status and Schedule window, use the Control function to choose Delay Reporting in accordance with the performance criteria checklist.</p>	<p>1) Press F6</p> <p>2) Open Delay Reporting Settings dialog</p> <p>(TMA Operator's Manual, p. 56, Sec. 3.2.2)</p>	SBL	P	Performance assessment

TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
e. Given an expanded Status and Schedule window, use the Control function to choose System Settings Recording in accordance with the performance criteria checklist.	1) Select System Settings Recording from the Control pull-down menu 2) The System Settings Recording dialog box opens (TMA Operator's Manual, pp. 205 - 206, Sec. 7.9.8)	SBL	P	Performance assessment
f. Given an expanded Status and Schedule window, use the Control function to choose Print/View System Settings in accordance with the performance criteria checklist.	1) Select Print/View System Settings from the Control pull-down menu 2) The Print/View System Settings dialog box opens (TMA Operator's Manual, p. 209, Sec. 7.9.9)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

TLO 25: Given an operational TMA, you will be able to use the F4 Panel to schedule departures on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, use the F4 Panel to schedule departures in accordance with the	1) Press F4 2) Select an unscheduled flight 3) Select the Schedule button in the upper-half of the Internal	ILT SBL	P	Performance assessment

TLO 25: Given an operational TMA, you will be able to use the F4 Panel to schedule departures on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.	<p>Departures window to bring up the dialog box for scheduling highlighted aircraft</p> <p>4) The Schedule a Departure dialog box will open with these six parts</p> <ul style="list-style-type: none"> a) Arrival airport and flight ID b) Flight plan c) Original Flight Estimate d) View/Change Scheduled Route e) Compute STA and Suggest Departure Time f) Buttons to freeze times, accept times, and close the window <p>(TMA Operator's Manual, pp. 258 - 259, Sec. 8.8)</p>			
Development Notes:				
Review Comments:				

TLO 26: Given an operational TMA, you will be able to explain how to reschedule an aircraft on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an expanded Status and Schedule window, identify the Display function button to access the pull-down menu of options with at least 70% accuracy.	1) Display from the Status and Schedule window 2) Pull-down menu 3) F1 key (TMA Operator's Manual, p. 211, Sec. 7.10)	ILT	C	Multiple choice
b. Given a Configuration and Runway Settings dialog box, identify a configuration to use the Configurations method with at least 70% accuracy.	1) Configurations 2) Pull-down menu 3) Configuration option (TMA Operator's Manual, pp. 133 - 134, Sec. 7.2.1.1)	ILT	C	Multiple choice
c. Given a Configuration and Runway Settings dialog box, identify an airport acceptance rate (AAR) to use the Configurations method with at least 70% accuracy.	1) Configurations 2) Pull-down menu 3) Configuration 4) Arrow/spin button selects an AAR (TMA Operator's Manual, pp. 133 - 134, Sec. 7.2.1.1)	ILT	C	Multiple choice
d. Given an expanded Status and Schedule window, explain the steps required to specify which airport's aircraft to reschedule with at	1) A few optional runway parameters can be set using Step 2: Specify Runway Restrictions 2) Acceptance rates and occupancy times for each	ILT	C	Multiple choice

TLO 26: Given an operational TMA, you will be able to explain how to reschedule an aircraft on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
least 70% accuracy.	runway 3) Include manually scheduled aircraft check button allows aircraft to be rescheduled (TMA Operator's Manual, pp. 138 - 139, Sec. 7.2.1.2)			
Development Notes:				
Review Comments:				

TLO 27: Given an operational TMA, you will be able to explain how to prepare TBFM for adapted airports with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain how to contact the person who can make the adaptation changes with at least 70% accuracy.	1) Observe issue with the nominal route a) Example: choice could be to shorten or lengthen a route, but either way it will increase another controller's workload and affect accuracy of TMA 2) Identify anomaly and gather supporting data; this goes to Lead Cadre 3) Lead Cadre analyzes the data 4) Contacts the system	ILT	C	Multiple choice

TLO 27: Given an operational TMA, you will be able to explain how to prepare TBFM for adapted airports with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	administrator 5) The main point is to not give conflicting information to the system administrator 6) Show the nominal route which will be modified as required			
b. Given an expanded Status and Schedule window, explain how to revise future parameters with at least 70% accuracy.	1) The Status and Schedule Window opens to show future scheduled changes a) While there are buttons to work with two future configurations, at present the system can only handle a single future configuration b) Future configuration changeover times are indicated on the timeline, in addition to in the Status and Schedule window 2) After this window expands, the user has the opportunity to input or revise future parameters 3) The three major operations, which are called from the top section, are:	ILT	C	Multiple choice

TLO 27: Given an operational TMA, you will be able to explain how to prepare TBFM for adapted airports with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	a) Configuration b) Airport Acceptance Rate (AAR) c) Separation Matrix			
c. Given access to an operational TMA, explain how to administer settings with at least 70% accuracy.	1) Most critical component of setting up the arrival rate 2) TMC sets up Runway Matrix settings and TRACON settings 3) Need to identify the buttonology 4) Works in concert with the TRACON buffer	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation	Topic: Aircraft Scheduling Window	Time: 4 hours
Training Outcome P: Upon completion of this lesson, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on a TMA in an operational environment.		

TLO 28: Given a TGUI display, you will be able to explain how to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, explain how to change an aircraft's scheduled time of arrival (STA) with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Determine when a change is necessary 2) Review the pre-departure profiles to determine if scheduling times show any anomalies 3) Demonstrate how to make the change 4) Make the change 	ILT	C	Multiple choice
b. Given a TGUI, explain how to manipulate the Aircraft Scheduling window to broadcast aircraft scheduling changes with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Make proper notification that a broadcast is going to occur <ol style="list-style-type: none"> a) Broadcast required message 2) Demonstrate how to broadcast 3) Broadcast 	ILT	C	Multiple choice
c. Given a Browse Aircraft Dialog Box, identify a pre-identified flight with	<ol style="list-style-type: none"> 1) Enter Control B 2) Type the ACID (aircraft ID) in the Search for flight box 	ILT	C	Multiple choice

TLO 28: Given a TGUI display, you will be able to explain how to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
at least 70% accuracy.	3) Click on Search 4) Select the pre-identified flight on the timeline 5) If an ACID is entered for which multiple flights exist, a dialog box appears to allow the correct aircraft to be selected (TMA Operator's Manual, p. 246, Sec. 8.5)			
d. Given a TGUI display, explain how to use the Reschedule commands with at least 70% accuracy.	1) The steps to use the Reschedule commands: a) Right click on an aircraft b) Choose Reschedule command from the drop-down box i) Choose aircraft call sign (1) Reschedule a single aircraft (2) The only times that will change are the times on the one aircraft ii) Choose "All" to reschedule all (1) Changes STAs on all	ILT	C	Multiple choice

TLO 28: Given a TGUI display, you will be able to explain how to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	aircraft (2) Review timelines to ensure that TMA rescheduled correctly (3) If notice that one time is an anomaly, then resolve the anomaly prior to broadcasting iii) If want to reschedule <u>and</u> broadcast, do it in two steps, not one iv) The one step, which is not encouraged, is to choose "All and Broadcast" (1) Changes STAs and sends the broadcast to all CPC scopes (2) This option should be used CAUTIOUSLY			
e. Given a TGUI display, explain how to use the Broadcast commands with at least 70% accuracy.	1) Broadcast commands steps: a) Right click on an aircraft b) Choose Broadcast command from the drop-down box	ILT	C	Multiple choice

TLO 28: Given a TGUI display, you will be able to explain how to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	c) Only want to broadcast once			
Development Notes:				
Review Comments:				

ILT Module 7: Additional Features

Lesson: TGUI Features Data Production	Topic: TGUI Features Data	Time: 2 hours
Training Outcome Q: Upon completion of this lesson, you will be able to produce data using TGUI features on a TMA in an operational environment.		

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a TGUI display, utilize a Quick Key command to complete an action in accordance with the performance criteria checklist.	1) Press the Help key 2) The main help dialog, On-Line Help, contains a list of quick action commands under Key 3) Display airport data by pressing down Control + A 4) Obtain a traffic count by selecting F5 5) Close window by pressing down Alt + F4 (TMA Operator's Manual, p. 266, Sec. 9.1)	SBL	P	Performance assessment
b. Given an operational TMA, access the Broadcast Status Indicator dialog box in accordance with the	1) Enter Control D (TMA Operator's Manual, p. 272, Sec. 9.3)	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
performance criteria checklist.				
c. Given a Weather Input Options and System Parameters dialog box, change system parameters in accordance with the performance criteria checklist.	1) Enter Control W 2) Toggle the On/Off buttons next to Reschedule for MP change a) Controls whether TMA reschedules aircraft when flights are switched between specific meter fixes b) Allows change of flights to nearby streams without changing frozen STAs (TMA Operator's Manual, p. 271, Sec. 9.2)	SBL	P	Performance assessment
d. Given a need to send a general information message from TMA, perform the steps necessary to send it in accordance with performance criteria checklist.	1) Message to HOST/ERAM dialog provides the capability for the operator to send HOST/ERAM messages (e.g., general information, interface test) 2) Dialog is accessed from the Control pull-down menu (TMA Operator's Manual, Sec. 7.9.10)	SBL	P	Performance assessment

TLO 29: Given a TGUI display, you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Development Notes:				
Review Comments:				

ILT Module 8: PGUI Map Display Options

Lesson: PGUI Map Options Identification	Topic: PGUI Map Options	Time: 30 minutes
Training Outcome R: Upon completion of this lesson, you will be able to identify the options displayed on the PGUI map in an operational environment.		

TLO 30: Given a PGUI display, you will be able to identify the options displayed on the PGUI map with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the F3 Key with at least 70% accuracy.	1) Keyboard 2) F3 key (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
b. Given a PGUI display, identify an option displayed on the PGUI map with at least 70% accuracy.	1) F3 key 2) Map Options panel 3) Select Map button (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: PGUI Map Options Modification	Topic: TGUI Map Options (continued)	Time: 1 hour
Training Outcome S: Upon completion of this lesson, you will be able to modify the options displayed on the PGUI map within the TMA in an operational environment.		

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, use the F3 Key to view a Center's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All Center from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
b. Given a PGUI display, use the F3 Key to view a TRACON's airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose All TRACON from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment

TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a PGUI display, use the F3 Key to view selected gate airspace in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose SOUTH-GATE from the list of available PGUI map options (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
d. Given a PGUI display, use the F3 Key to suppress the map display in accordance with the performance criteria checklist.	1) Press the F3 key 2) The Map Options panel appears 3) Left-click on the Select Map button 4) Choose No Map from the list of available PGUI map options 5) Suppressing the map is useful to clearly see the sequence list or other features without the map displays interfering (TMA Operator's Manual, pp. 277 - 278, Sec. 10.1)	SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 10: Map Options

Lesson: PGUI Map Options	Topic: F3 Key Options	Time: 30 minutes
Training Outcome U: Upon completion of this lesson, you will be able to recall the PGUI map options on a TMA in an operational environment.		

TLO 33: Given a Map Options (F3) panel, you will be able to recall the PGUI map options on an operational TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map Options (F3) panel, recall PGUI map options on an operational TMA with at least 70% accuracy.	1) Map Options <ul style="list-style-type: none"> a) Brightness Controls b) Range Rings c) Fixes d) Routes e) Boundaries f) Sector Data (TMA Operator's Manual, p. 277, Sec. 10.1)	ILT	C	Multiple choice

Development Notes:

Review Comments:

Lesson: PGUI Map Manipulation	Topic: PGUI Map Features and Files	Time: 1 hour
Training Outcome V: Upon completion of this lesson, you will be able to manipulate the PGUI map features and display on a TMA in an operational environment.		

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Map View Options (F3) panel, select PGUI files in accordance with the performance criteria checklist.	1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a file name from the list and click the Apply button (TMA Operator's Manual, p. 300, Sec. 12.1)	SBL	P	Performance assessment
b. Given a Map Option (F3) panel, select PGUI features in accordance with the performance criteria checklist.	1) Adjust these two Brightness Controls features: a) Datablock b) Sequence List 2) Adjust the Initial Radius for the Range Rings feature 3) Select the Meter Points box as the Fixes figure 4) Select the Preferred Departure Routes for the Routes feature (TMA Operator's Manual, p. 277, Sec. 10.1)	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given a Map Options (F3) panel, manipulate the map perspective on the PGUI in accordance with the performance criteria checklist.	<ol style="list-style-type: none"> 1) Click on the Center Zoom File Open button 2) The Center Zoom File Selection dialog box appears 3) Select a filename from the list 4) Click the Apply button 5) Click on the Center Zoom File Save button 6) Select a filename from the list 7) Click the Save button 8) Click on the TMA button next to Set View from Sector Menu 9) Select a pre-defined PGUI sector map from a drop-down list 10) Click on the Map Options panel OK button 11) Click on the Set Map Range button 12) Hold the mouse button down, scroll down the list, select the desired range and release the mouse button 13) Click on the Map Options panel OK button 14) Click on the Set Map Range Full Map button 	SBL	P	Performance assessment

TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	15) Click on the Map Options panel OK button (TMA Operator's Manual, pp. 300 - 305, Sec. 12.1)			
Development Notes:				
Review Comments:				

ILT Module 11: Default File Load Options

Lesson: Manipulation of Files Using the Load Display Files Panel	Topic: Load Display Files Panel	Time: 1 hour
Training Outcome W: Upon completion of this lesson, you will be able to use the Load Display Files Panel to manipulate files stored on a TMA in an operational environment.		

TLO 35: Given a PGUI display, you will be able to use the Load Display Files Panel to manipulate files stored on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify a file stored on an operational TMA with at least 70% accuracy.	1) Files are stored on TMA 2) Certain files may need to be accessed 3) How files are accessed a) Press the F4 key b) Click on the Open button next to the Master File feature c) Locate a file from the Master File Selection dialog box d) Click the OK button to cancel (TMA Operator's Manual, p. 313, Sec. 13.2.1)	ILT	C	Multiple choice
b. Given the Load Display Files (F4) panel, select a	1) Press the F4 key 2) The Load Display Files panel	ILT	P	Performance

TLO 35: Given a PGUI display, you will be able to use the Load Display Files Panel to manipulate files stored on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
file in accordance with the performance criteria checklist.	appears (TMA Operator's Manual, p. 312, Sec. 13.1)	SBL		assessment
c. Given a PGUI display, use the F4 Key to view the Load Display Files panel in accordance with the performance criteria checklist.	1) Click the Open button next to Map File 2) Select a file 3) Load the file 4) Click the Save button 5) Click the OK button (TMA Operator's Manual, p. 312, Sec. 13.1)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 12: Sequence Options

Lesson: Sequencing and Its Effects	Topic: Sequence List	Time: 4 hours
Training Outcome X: Upon completion of this lesson, you will be able to identify the sequence lists on a TMA in an operational environment.		

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, define the three Sequence List categories with at least 70% accuracy.	1) Sequence List Traffic: Identifies aircraft included in the Sequence List 2) Sequence List Data: Identifies data displayed in the Sequence List 3) Sequence List Format: Identifies how the Sequence List is displayed (i.e., what order the aircraft are in, how precise the times are, in a compact or spread-out format) (TMA Operator's Manual, pp. 321 - 333, Sec. 14.5)	ILT	C	Multiple choice
b. Given a change in any information in the F1 panel, explain the effects	1) Change in TMA occurs 2) Time change not shown on controller's scope	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
of rippling the list with at least 70% accuracy.	3) TMA is broadcast 4) Possible 15 min delay on one aircraft 5) TMA must be rippled again and re-broadcast. 6) End result is additional work at adjacent centers to accommodate new delays			
c. Given the F1 panel, describe why the arrival rate is important with at least 70% accuracy.	1) Normal arrival rate (as example) is 60 a) TMA divides this into four 15-minute periods b) Landing an aircraft every minute c) Separation at final is 2.5 2) Tower requests arrival rate to be 30 a) If only change made is arrival rate, TMA divides aircraft into 8, 8, 7, 7 b) Will schedule them together c) Alternatively, if re-set spacing for 5 at final, then the arrival rate will take care of itself 3) Arrival rate is only important if it is set too low; it can't be	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	set too high 4) Arrival rate that is set too high does not make a difference as long as spacing on final is set up accurately			
d. Given the F1 panel, describe why changing the configuration is important with at least 70% accuracy.	1) It is important that the configuration in TMA match the configuration the airport is in 2) When configuration is changed, the list will be rippled	ILT	C	Multiple choice
e. Given a local example, describe the requirements associated with resequencing the aircraft with at least 70% accuracy.	1) TMC can resequence 2) If resequence an aircraft, STAs will be changed 3) Do not want to change STAs without advising the CPC 4) Facility practice may include coordination with overlying ARTCC when an aircraft goes around or arrival hole is missed due to a resequence. Since the aircraft may drop out of TMA (it thinks the aircraft has arrived), a manual slot may need to be added back in the timeline by the Controlling ARTCC so	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	that TMA is accounting for that aircraft			
f. Given an initially developed matrix, identify the impact of adjusting the buffer on the arrival rate with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Separation standards with the absolute minimums 2) Instead of running the minimum standard separation, create a buffer of, for example, three-tenth of a mile 3) If the buffer is adjusted, then all the STAs on the matrix will change 	ILT	C	Multiple choice
g. Given a need to reduce delays, describe the effects of a drag and drop action with at least 70% accuracy.	<ol style="list-style-type: none"> 1) When drag and drop, red light and green light appear on the bar 2) Will change runway times, meter fix times, and outer meter fix times 3) Only guaranteed separation on the timeline to which the aircraft is dragged <ol style="list-style-type: none"> a) All the STAs will be changed so the CPC will receive new STAs b) Separation is no longer guaranteed 4) If drag and drop to runway, will only get separation at the 	ILT	C	Multiple choice

TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	runway, not at the meter fix, too			
h. Given delays, describe methods to modify times with at least 70% accuracy.	<ol style="list-style-type: none"> 1) The only way to modify times is to reschedule 2) There are several ways to reschedule (review notes above) 	ILT	C	Multiple choice
i. Given a mixed fleet, describe how airport capacity is affected with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Matrix window has 36 cells (6x6) 2) With relationship to the Separation Matrix 3) Lose a lot of capacity because separation matrix is bigger for mixed fleets 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Manipulation of the Sequence Lists Using the Sequence List Options Panel	Topic: Sequence List Options Panel	Time: 1 hour
Training Outcome Y: Upon completion of this lesson, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on a TMA in an operational environment.		

TLO 37: Given a PGUI display, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the Sequence List Options (F7) panel, select the PGUI sequence list display option in accordance with the performance criteria checklist.	1) Press the F7 key 2) The Sequence List Options panel appears 3) Click on the Display Sequence List checkbox 4) Review the possible sequence list PGUI tool feature values (TMA Operator's Manual, p. 319, Sec. 14.2)	SBL	P	Performance assessment
b. Given a Sequence List Options (F7) panel, select a PGUI file in accordance with the performance criteria checklist.	1) Press the F7 key 2) The Sequence List Options panel appears 3) Click on the Sequence File Open button 4) A file selection dialog box will appear (TMA Operator's Manual, p. 319, Sec. 14.3)	SBL	P	Performance assessment
c. Given a Sequence List	1) Press the F7 key	SBL	P	Performance

TLO 37: Given a PGUI display, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Options (F7) panel, choose a customized PGUI file in accordance with the performance criteria checklist.	2) The Sequence List Options panel appears 3) Click on the Sequence File Open button 4) A file selection dialog box will appear (TMA Operator's Manual, p. 319, Sec. 14.3)			nce assessment
Development Notes:				
Review Comments:				

ILT Module 13: PGUI Timeline Options

Lesson: Definition of Timeline Options Panel	Topic: Timeline Options	Time: 30 minutes
Training Outcome Z: Upon completion of this lesson, you will be able to describe the Timeline Options panel parts on a TMA in an operational environment.		

TLO 38: Given a PGUI display, you will be able to define the Timeline Options panel parts on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Timeline Options panel with at least 70% accuracy.	1) Individual display options can be accessed via the F10 key: Timeline Options Panel 2) User can choose whether to display timelines, whether to stack timelines, and how many timelines to display	ILT	C	Multiple choice
b. Given a Timeline Options panel, describe the four distinct parts of the panel with at least 70% accuracy.	1) The four distinct parts are: a) Timeline defaults files b) Number of timelines c) Set up options for each side of each timeline d) Color options	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Creation of an PGUI Timeline Display Using the Timeline Options Panel	Topic: PGUI Timeline Options	Time: 1 hour 30 minutes
Training Outcome AA: Upon completion of this lesson, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on a TMA in an operational environment.		

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI timeline display, discuss the Quick Copy operations with at least 70% accuracy.	1) Ability to streamline the development of multiple timelines based on one setup 2) Have the ability to copy: a) An entire timeline b) An entire timeline side c) A single option on a timeline or timeline side (TMA Operator's Manual, pp. 349 - 357, Sec. 15.5)	ILT SBL	C	Multiple choice
b. Given a Timeline Options panel, explain options to change the aircraft tag color with at least 70% accuracy.	1) Ability to change the color appearance of the following: a) ETA b) STA Frozen c) STA Unfrozen (TMA Operator's Manual, p. 357, Sec. 15.6)	ILT SBL	C	Multiple choice
c. Given a Timeline Options (F10) panel, access the	1) Press the F10 key 2) Click on the Open... button	ILT	P	Performance

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
PGUI files in accordance with the performance criteria checklist.	3) Select a default file from the Timeline File Selection list 4) Click Apply 5) Press the F10 key 6) Click on the Save... button 7) Select a default file from the Save Timeline File list 8) Click OK (TMA Operator's Manual, pp. 336 - 338, Secs. 15.2.1 - 15.2.2)	SBL		assessment
d. Given a PGUI display, choose the timeline appearance options in accordance with the performance criteria checklist.	1) Select the Display Timelines checkbox 2) Select the Stack Timelines checkbox 3) Select the Number of Timelines option 4) For each timeline, the following options can be set: a) Length b) Gap c) Reference 5) Four options can be set separately for the left and right side of each timeline: a) Arrival Type b) Aircraft Size c) Meter Fixes	ILT SBL	P	Performance assessment

TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	d) Runways (TMA Operator's Manual, pp. 338 - 349, Secs. 15.3 - 15.4)			
Development Notes:				
Review Comments:				

ILT Module 14: Control Panel

Lesson: Datablock Options Capabilities	Topic: Researcher Control Panel	Time: 1 hour
Training Outcome BB: Upon completion of this lesson, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on a TMA in an operational environment.		

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify the Researcher Control Panel with at least 70% accuracy.	1) F11 key (TMA Operator's Manual, p. 359, Sec. 16.1)	ILT	C	Multiple choice
b. Given a PGUI display, describe the Researcher Control Panel with at	1) Provides configuration of the data elements displayed in an aircraft's Datablock and	ILT	C	Multiple choice

TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
least 70% accuracy.	customizes the Color of the various PGUI elements (TMA Operator's Manual, p. 359, Sec. 16.1)			
Development Notes:				
Review Comments:				

Lesson: Manipulation of an Aircraft's Datablock Element Display and Color Scheme	Topic: PGUI Color Files and Capabilities	Time: 1 hour
Training Outcome CC: Upon completion of this lesson, you will be able to manipulate an aircraft's Datablock element display and color scheme on a TMA in an operational environment.		

TLO 41: Given a PGUI display, you will be able to manipulate an aircraft's Datablock element display and color scheme on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a Datablock Options Panel, explain the PGUI capabilities with at least 70% accuracy.	1) Explain how to access the Datablock 2) How to make changes 3) How to save changes	ILT SBL	C	Multiple choice
b. Given a Researcher Control Panel, select PGUI color files in accordance with the performance criteria checklist.	1) Open and save buttons 2) Load Defaults Colors button (TMA Operator's Manual, p. 363, Sec. 16.3)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions	Topic: Traffic Management Functions	Time: 4 hours
Training Outcome DD: Upon completion of this lesson, you will be able to identify the PGUI traffic management functions on a TMA in an operational environment.		

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI display, identify separation data between two points in accordance with at least 70% accuracy.	1) How separation data is accessed a) Dwell on the first object (aircraft) b) Press the space bar c) Dwell on the second object (airport) d) Press the space bar e) View the separation data in the message area (TMA Operator's Manual, p. 365, Sec. 17.3)	ILT	C	Multiple choice
b. Given access to an operational TMA, explain the PGUI Datablock display information with at least 70% accuracy.	1) What is displayed in the PGUI Datablock	ILT	C	Multiple choice
c. Given the	1) WDPD gets the site-specific	ILT	C	Multiple

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Winds/Temperature panel, describe the weather data generated by the Weather Data Processing Daemon (WDPD) with at least 70% accuracy.	<p>GRIB file from TMA Remote Weather System (CREWS), converts it to a binary format, and broadcasts the file to configured weather Clients (PGUI and TGUI). CREWS get the weather file on an hourly basis from the National Weather Service (NWS)</p> <p>2) Describe the following on the panel:</p> <ul style="list-style-type: none"> a) Date b) Time c) Forecast Hour d) Altimeter Setting e) Altitude f) Direction g) Wind Speed h) Temperature <p>(TMA Operator's Manual, p. 367, Sec. 17.5)</p>			choice
d. Given the interface control document, identify when it is appropriate to change settings within the parameters of the	<ul style="list-style-type: none"> 1) Interface control document 2) Settings for which Cadre can work with FAST to utilize 3) Not software; be able to have an educated discussion with FAST team 	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
interface control document at least 70% accuracy.	4) Problem or initial adaptation			
e. Given an operational TMA, identify when it is appropriate to suspend aircraft with at least 70% accuracy.	1) Suspending an aircraft removes that aircraft from normal arrival traffic scheduling calculations 2) To temporarily increase acceptance rate without adjusting metering rates (EX: a few unexpected visual approaches outside of the normal flow) 3) EX: When a brief period of unexpected VAPS have occurred to a different runway (aircraft leaving the main metered flow), it may be appropriate to suspend these aircraft since they are no longer taking up space on the metered flow. If these aircraft have already arrived, suspending a few aircraft on the metered flow may be appropriate 4) On the PGUI a suspended aircraft is highlighted for a	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>brief amount of time then just looks like a regular aircraft</p> <p>(TMA Operator's Manual, p. 366, Sec. 17.4)</p>			
f. Given a STAR route, explain why it is converted into TMA routes with at least 70% accuracy.	<ol style="list-style-type: none"> 1) STAR is a pre-planned IFR air traffic control arrival procedures published in graphic and/or text form 2) STARS provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area 3) In calculating ETAs, TMA analyzes the possible routes and trajectories that an aircraft is likely to take based on factors such as assigned meter fix, destination airport, airport configuration, engine type and approach segment, and the aircraft's current position, altitude, heading, and speed 4) STAR routes must be configured in TMA in order for the system to calculate 	ILT	C	Multiple choice

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	ETAs, just like all other routes and airport configurations (TMA Operator's Manual, Sec. 1.3)			
g. Given an operational TMA, identify relevant situational information with at least 70% accuracy.	1) TMA information is paired down to determine what information is needed to run a particular flow	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Use of the PGUI Traffic Management Functions	Topic: Functional Keys and Displays	Time: 3 hours
Training Outcome EE: Upon completion of this lesson, you will be able to utilize the PGUI traffic management functions on a TMA in an operational environment.		

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a PGUI, use the pointer to display a limited aircraft data message in accordance with the performance criteria checklist.	1) Dwell the pointer on the aircraft symbol 2) If the Sequence List is displayed, dwell the pointer on the line corresponding to that aircraft (TMA Operator's Manual, p. 364, Sec. 17.1)	ILT	P	Performance assessment
b. Given a complete arrival and departure list in TMA, use the PGUI traffic management functions to prioritize it in accordance with the performance criteria checklist.	1) The PGUI provides a text-based Sequence List display 2) The list includes a user-defined row of column headers followed by rows of aircraft-specific information organized within each by selected grouping a) For example, meter fix, runway, etc. b) The first column in each row is always the aircraft ID (ACID)	ILT SBL	P	Performance assessment

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) Configure the sequence list display with the Sequence List Options (F7) panel			
c. Given a PGUI, use the pointer and keyboard to display the Flight Plan panel in accordance with the performance criteria checklist.	1) Dwell the pointer on the aircraft symbol 2) Type f to display the Flight Plan panel a) CID (HOST computer ID) b) ACID c) Aircraft Type and Equipment d) Beacon Code e) True Airspeed or Match Number f) Altitude g) Flight Route h) Meter Fix i) Runway (TMA Operator's Manual, p. 364, Sec. 17.2)	ILT SBL	P	Performance assessment
d. Given a PGUI, use the F8 Key to display the TRACON Connection Status panel in accordance with the performance criteria checklist.	1) Press the F8 key 2) The PGUI TRACON Connection Status panel appears 3) If the TRACON Connection Status checkbox is selected, the message displays	ILT SBL	P	Performance assessment

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>TRACON Data Available on the PGUI map if any of the ARTS or STARS interfaces are connected, and displays TRACON Data Unavailable if none are connected</p> <p>4) If the Popup Window on Status Change checkbox is selected, the panel pops up when there is a change in any of the TRACON connections</p> <p>(TMA Operator's Manual, p. 371, Sec. 18.1)</p>			
e. Given a PGUI display, choose to temporarily suspend an aircraft from normal arrival traffic scheduling calculations in accordance with the performance criteria checklist.	<p>1) Dwell on the aircraft symbol or Datablock</p> <p>2) Press "x"</p> <p>3) A scheduling suspension notice will appear</p> <p>4) The STA for the aircraft in the Sequence List will change to "xxxx" and the ETA will be enclosed within square brackets</p> <p>(TMA Operator's Manual, p. 366, Sec. 17.4)</p>	<p>ILT</p> <p>SBL</p>	P	Performance assessment
Development Notes:				

TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

ILT Module 16: En Route Departure Capability

Lesson: Traffic Flows	Topic: Ground Delay Program and EDCT	Time: 1 hour
Training Outcome FF: Upon completion of this lesson, you will be able to describe traffic flows in an operational environment.		

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define a ground delay program with at least 70% accuracy.	1) Why double delays occur 2) Impact of circumventing double delays (what happens if freeze early in an attempt to preserve list) a) What does it look like when you have a ground delay program going on? b) What is the impact of manipulating the ground delay programs?	ILT	C	Multiple choice
b. Given access to an operational TMA, describe what the EDCT characters look like with at least 70% accuracy.	1) EDC is an enhancement to TMA deployed at ARTCCs where an en route departure and metering functionality is required 2) EDC displays a) TGUI b) PGUI c) Single GUI configuration	ILT	C	Multiple choice

TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, pp. 389 - 390, Secs. C.1.1 - C.2.2.1)			
Development Notes:				
Review Comments:				

Lesson: Management of Traffic Flows Using the EDC Tool	Topic: EDC Tool	Time: 15 minutes
Training Outcome GG: Upon completion of this lesson, you will be able to use the EDC tool to manage traffic flows in an operational environment.		

TLO 46: Given the need to manage flows, you will be able to define the EDC tool with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the EDC tool, define the EDC tool with at least 70% accuracy.	1) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary 2) Traffic flow describes the aircraft that are departing from or bound for an airport (TMA Operator's Manual, p. 388, Sec. C.1)	ILT	C	Multiple choice

TLO 46: Given the need to manage flows, you will be able to define the EDC tool with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Development Notes:				
Review Comments:				

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change	Topic: En Route Anomalies and Differences	Time: 3 hours
Training Outcome HH: Upon completion of this lesson, you will be able to solve problems on an operational TMA.		

TLO 47: Given a problem on an operational TMA, you will be able to identify the best method to communicate the issue the designated point of contact with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an arrival and departure list, identify an anomaly with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Identify if it is really an anomaly or just new to the user <ol style="list-style-type: none"> a) Example - visual depiction of fleet mix appears normal except for a large gap where demand exists 2) Research - take a screen shot, talk with colleagues, find a FAST person or test it in the Support String 3) Example - Aircraft times are off. One ac is 15 min off. In the event of a large gap, you can; swap ac, indicator is a break in uniform visual 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 48: Given access to an operational TMA, you will be able to discuss when it is appropriate to initiate an adaptation change with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, explain why routes have different configurations with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Routes pre-configured within TRACON adaptation have to be as accurate as possible; if routes are inaccurate, they will negatively impact the schedule 2) Based on how each facility has set up TMA 3) Internal satellites affect how airports input flows into existing streams 4) Routes adapted inside of a TRACON should be adapted to real-time operation. Incorrect routes will have negative affect on schedule 5) Most efficient route of flights is based on restrictions (noise abatement and route planning) 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a STAR, describe the en route trajectory with at least 70% accuracy.	1) Recognize what changes to a STAR should be annotated and forwarded to technicians	ILT	C	Multiple choice
b. Given access to an operational TMA, explain the difference between a red x on the scope and a red x on TMA on a scope with at least 70% accuracy.	1) Red X on a scope means a controller is not receiving HOST data 2) Red X on TMA means TMA is not receiving HOST data and cannot be used to meter	ILT	C	Multiple choice
c. Given an operational TMA, identify the Print Screen button with at least 70% accuracy.	1) Review the TGUI hot keys on the keyboard and describe how to use print screen a) Place the cursor in the desired display b) Press the Print Screen button c) Left click the mouse (TMA Operator's Manual, p. 58, Sec. 3.2.4)	ILT	C	Multiple choice
d. Given an operational TMA, define Single Gate Free Flow (SGFF) with at least 70% accuracy.	1) The third of three Gate and MFX parameters 2) Located in the Status and Schedule window 3) Provide an example	ILT	C	Multiple choice

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	(TMA Operator's Manual, p. 159, Sec. 7.4.3.1)			
Development Notes:				
Review Comments:				

Lesson: Communicating Anomalies	Topic: Options and Processes to Communicate Anomalies	Time: 3 hours
Training Outcome II: Upon completion of this lesson, you will be able to explain the steps required to communicate anomalies on an operational TMA.		

TLO 50: Given an anomaly on an operational TMA, you will be able to explain the steps required to communicate the issue to the designated point of contact with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the identification of an anomaly, describe the process to file tickets with at least 70% accuracy.	1) Data regarding the anomaly is collected 2) Data is giving to the Cadre 3) Cadre then enters a site report which is sent to the technician	ILT	C	Multiple choice
b. Given access to an operational TMA, explain what information needs to be communicated to CPCs with at least 70% accuracy.	1) Print the current screen a) Place cursor in desired display b) Press Print Screen and left click mouse 2) Send GUI screen shot and description for analysis to WJHTC a) Place cursor in desired display b) Press Shift + Print Screen and left click mouse (TMA Operator's Manual, p. 70, Sec. 4.2.2)	ILT	C	Multiple choice
c. Given the identification	1) Print the current screen	ILT	C	Multiple

TLO 50: Given an anomaly on an operational TMA, you will be able to explain the steps required to communicate the issue to the designated point of contact with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
of an anomaly, identify how to use the Print Screen button to capture a screen shot with at least 70% accuracy.	a) Place cursor in desired display b) Press Print Screen and left click mouse 2) Send GUI screen shot and description for analysis to WJHTC a) Place cursor in desired display b) Press Shift + Print Screen and left click mouse (TMA Operator's Manual, p. 70, Sec. 4.2.2)			choice
Development Notes:				
Review Comments:				

ILT Module 18: Procedures

Lesson: Procedures	Topic: TMA Procedures	Time: 8 hours
Training Outcome JJ: To be determined upon national TMA procedure acceptance.		

TLO 51: To be determined upon national TMA procedure acceptance.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. To be determined upon national TMA procedure acceptance.	1) To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.
Development Notes:				
Review Comments:				

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Course Title: Traffic Management Advisor (TMA) for ATCS En Route

Course Goal(s): The goals of this course are for the learner to be able to describe how TMA is used to manage metering, use TMA data to meet metering requirements, and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to their job duties.

WBT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 35 minutes
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used	WBT ILT refresher	C	Multiple choice

Development Notes:

Review Comments:

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	WBT ILT refresher	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	WBT ILT refresher	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary	WBT ILT refresher	C	Multiple choice
Development Notes:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, discuss how an aircraft route change affects the system with at least 70% accuracy.	1) Explain how changing an aircraft route affects nearby sectors and the NAS 2) Explain how a difference between an aircraft file route and the route flown will impact system performance 3) Highlight how decisions and actions impact other airspaces (encourage “a cooperative environment through enhanced global situational awareness”) 4) Give an example of how an arrival over an inbound fix, such as an emergency aircraft, becomes a No Fix and how that affects the TMA schedule 5) Explain how timeline corruption occurs and how	WBT ILT Refresher	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	that has an effect on future aircraft 6) Hard altitude changes a) Sector strata			
b. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data display i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The Color Preferences and Brightness for datablocks can be	WBT ILT refresher	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>adjusted and stored in user preference sets. Default brightness is 90</p> <p>c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA)</p> <p>d) Scheduling factors</p> <p>e) Scheduling constraints</p> <p>2) Explain the efficiency gained by using TMA</p>			
c. Given access to an operational TMA, discuss how TMA adapts based upon wind data with at least 70% accuracy.	<p>1) How wind data is derived</p> <p>2) Limitations</p> <p>3) Altitude restriction and descent profiles are a factor in TMA calculations for an aircraft's ETA</p>	<p>WBT</p> <p>ILT Refresher</p>	C	Multiple choice
Development Notes:				
Review Comments: NEED SME TECHNICAL INPUT (1) ELO-a: [In discussing how an aircraft change affects the system, mention] hard altitude changes – sector strata. (AN) (2) ELO-b: Separate operational capability from main components. Operational capability first, mention system components in a later lesson. (FAA)				

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 2 hours
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a line of arrivals, identify why to call for release within the freeze horizon with at least 70% accuracy.	1) Because the aircraft is within the freeze horizon, high probability of a delay 2) Can freeze at an identified time so more delays are not caused 3) Take majority of the delay on the ground instead of the air because it's easier to hold them on the ground then put them in a holding pattern 4) Late or early departure	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the end of a TBFM session, explain when it is unnecessary to meter with at least 70% accuracy.	1) List and description of TMIs 2) When a meter session ends, need to associate different tools 3) When ending a metering session using TMA, need to know how to transition to another TMI 4) Don't meter when don't have to do so	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an adapted TMA, explain what the Meter Fix Speed is with at least 70% accuracy.	1) It is a pre-adapted value 2) Aircraft has to cross the meter fix at a given altitude and a given speed (pre-adapted in local facility adaptation) 3) TMA uses this value to set scheduling and ETAs 4) Adapted speeds need to be communicated to all affected	ILT	C	Multiple choice

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	TMC and ATCS users of the system			
Development Notes:				
Review Comments:				

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given airport capacity information, describe conditions under which TMA might be initiated TMA with at least 70% accuracy.	1) When an airport gets too close to capacity, then it is time to start using TMA 2) Airport capacity is the runway acceptance rate 3) Some centers will run TMA at 60% capacity, others at 70% or 90% 4) Also depends on how the aircraft are spread out and where delays are - Will turn TMA On or Off based upon the average delays which are determined using graphs	ILT	C	Multiple choice
b. Given an operational TMA, identify the fleet mix with at least 70% accuracy.	1) TGUI timeline 2) Identify these types of aircraft by their symbols in the CTAS meter list:	ILT	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	a) Boeing 757 b) Super Heavy c) Heavy d) Large e) Small			
c. Given the EDC tool, explain what a traffic flow is with at least 70% accuracy.	1) Traffic flow describes the aircraft that are departing from or bound for an airport 2) EDC manages en route traffic flows exiting an ARTCC to an adjacent ARTCC and provides meter points further out from the meter fixes at the TRACON boundary (TMA Operator's Manual, p. 388, Sec. C.1)	ILT	C	Multiple choice
d. Given a low average TBFM delay assigned by TMA, identify when it is appropriate to terminate TBFM with at least 70% accuracy.	1) When to terminate TBFM differs from center to center a) Some facilities use TMA all day (never turn it off) b) Other facilities have policy to use it only when it's necessary (the TMC's decision)	ILT Small group discussion	C	Multiple choice
e. Given an operational TMA, identify discrepancies in the list	1) Look at delay times 2) If the majority of aircraft have 2 or 3 minute delays and	ILT Small group	C	Multiple choice

TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
with at least 70% accuracy.	<p>one has a 15-minute delay, the 15-minute delay may be a discrepancy</p> <p>3) Discrepancies are not necessarily bad or unintentional; for example, a reason for the 15-minute delay may be that the aircraft is working as a designed. ACFT may have been released without CFR internally and/or the ACFT departed at the wrong coordinated (reserved) time; VFR to IFR pop up could result in a comparatively extended delay for the better “good” of the system users</p>	<p>discussion</p> <p>SBL</p>		
f. Given TBFM, describe at least two conditions under which TBFM should be stopped and TMA turned off with at least 70% accuracy.	<p>1) No airplanes</p> <p>2) Low demand</p> <p>3) Low average delay</p>	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an adapted TMA, identify the meter reference points (MRP) or meter fixes (MFX) and associated center sectors with at least 70% accuracy.	<ol style="list-style-type: none"> 1) Meter Fix Arc (Outer Meter Fix Arc): A predetermined arc, usually set at the same distance from Meter Fix as the Outer Fix, for which crossing times are calculated, when an aircraft will not travel over an outer fix 2) Metering fix: A fix along an established route where aircraft metering begins in anticipation of the aircraft entering terminal airspace. Normally, this fix is established 10,000 feet above airport elevation at a distance from the airport that will facilitate a profile descent to that airport 3) Freeze horizon: <ol style="list-style-type: none"> a) CPCs only need to know MFXs applicable to their area of control 	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Aircraft Swap	Topic: STA Swap and Continuous Monitoring	Time: 1 hour
Training Outcome N: Upon completion of this lesson, you will be able to perform the steps to swap aircraft on a TMA in an operational environment.		

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, perform the steps required to swap the scheduled times of arrival of two inbound aircraft in accordance with the performance criteria checklist.	1) Review the reasons to swap two aircraft 2) Discuss the importance of continuous monitoring 3) Identify when it is appropriate to swap their scheduled times of arrival of aircraft a) Enabled in adaptation b) Can swap STAs for active aircraft in control of (TMA Operator's Manual, p. 239, Sec. 8.2.15) 4) Key strokes for manual swap; MW_CID_CID	ILT SBL	P	Performance assessment
b. Given an operational TMA, perform the steps required to resequence the scheduled times of arrival three or more aircraft in accordance	1) Explain terminology difference between swap and resequence 2) SQ_CID_CID_CID_CID... in order first to last	ILT SBL	P	Performance assessment

TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
with the performance criteria checklist.				
Development Notes:				
Review Comments:				

Lesson: Use of the Status and Schedule Window	Topic: Status and Schedule Window Scheduling parameters	Time: 10 minutes
Training Outcome G: Upon completion of this lesson, you will be able to discuss the HOST/ En Route Automation Modernization (ERAM)/ARTS connection on a TMA in an operational environment.		

TLO 9: Given an operational TMA, you will be able to discuss the HOST/ERAM/ARTS connection with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the HOST/ERAM/ARTS connection with at least 70% accuracy.	1) TMA is always receiving data from the HOST or ERAM (TMA Operator's Manual, p. 129, Sec. 7.1.2)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Use of the Status and Schedule Window (continued)	Topic: Status and Schedule Window Scheduling parameters	Time: 20 minutes
Training Outcome O: Upon completion of this lesson, you will be able to use the Status and Schedule window to configure scheduling parameters on a TMA in an operational environment.		

TLO 23: Given an operational TMA, you will be able to explain the techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, explain the techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with at least 70% accuracy.	1) These are only suggested ways to handle delay but there may be other mitigating factors a) Speed (1 - 3 minutes) b) Speed and Vectors (4 - 6), Spin (6+)	ILT	C	Multiple choice
b. Given an operational position and a meter list, identify control instructions to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA with at least 70% accuracy.	1) Explain instructions to meet times a) Speed control i) Radar vectors ii) Spin iii) Timed crossing restriction b) Effectiveness, wind, DCT indications with current state of the aircraft toward the MFX	ILT	C	Multiple choice

TLO 23: Given an operational TMA, you will be able to explain the techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Development Notes:				
Review Comments:				

ILT Module 6: Scheduling Aircraft and Traffic Management

Lesson: Aircraft Scheduling Window Manipulation	Topic: Aircraft Scheduling Window	Time: 15 minutes
Training Outcome P: Upon completion of this lesson, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on a TMA in an operational environment.		

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, display the meter list in accordance with the performance criteria checklist.	1) This is an ATCS function 2) DSR console function (run by HOST or being replaced by ERAM) 3) To turn on/off meter lists	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>from display keys on the DC view, toggle TMA LIST on the Display Filter Selection Panel on the DSR MDM</p> <p>4) Toggle the On/Off DSR buttons on the window display TMA Meter Lists allow the ATCS to understand the sequence of the arrival flow through their sector, however when multiple airports are being metered the lists can take up considerable space on the MDM</p> <p>5) To reduce the size of the Meter Lists, a new feature in the TBFM software called Meter List Alternate Sequence (MLAS) can be adapted to change the parameter at which aircraft will populate or drop from a sector Meter List (Adapted at ZOB - need SME input)</p>			
b. Given a Meter List display, show what is on	<p>1) This is an ATCS function</p> <p>2) Turn the CTAS meter list on</p>	ILT	P	Performance

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
the scope in accordance with the performance criteria checklist.	3) Identify which aircraft are being metered 4) Find the ETA, STA, DCT 5) CPC would need to determine if the list is out of order by looking at the list	SBL		assessment
c. Given a Meter List display, manipulate the list to order the aircraft in accordance with the performance criteria checklist.	1) One way is to swap aircraft A and aircraft B a) Type "MW" b) Hit spacebar c) Type computer ID (CID) or aircraft ID (AID) d) Hit spacebar e) Type computer ID or aircraft ID f) Hit Enter g) The two STAs will change 2) Another option is to resequence, which incorporates the same swap steps after typing "SQ" but for three to five aircraft 3) Swaps or resequencing can only occur if the aircraft are in the controller's sector and the controller has control of them all	ILT SBL	P	Performance assessment

TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Development Notes:				
Review Comments:				

ILT Module 7: Additional Features

Lesson: TGUI Features	Topic: TGUI Features	Time: 10 minutes
Training Outcome I: Upon completion of this lesson, you will be able to describe TGUI features on a TMA in an operational environment.		

TLO 11: Given an operational TMA, you will be able to recall TGUI features with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given extreme weather conditions, explain when it is appropriate to use Miles in Trail for spacing rather than TMA with at least 70% accuracy.	1) It is not appropriate to use TMA when CPC's would be unable to perform TBFM due to deviations	ILT	C	Multiple choice
b. Given a need for additional tools, describe what tools work well with TMA with at least 70% accuracy.	1) Ground speed indications 2) Vector lines 3) CRR	ILT SBL	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 15: Traffic Management with the TMA PGUI

Lesson: PGUI Traffic Management Functions	Topic: Traffic Management Functions	Time: 20 minutes
Training Outcome DD: Upon completion of this lesson, you will be able to identify the PGUI traffic management functions on a TMA in an operational environment.		

TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, explain the Datablock display information with at least 70% accuracy.	1) Explain what is displayed in the Datablock a) DCT i) relationship to STA ii) how it is calculated iii) limitations b) STA i) relationship to DCT ii) miles vs. minutes in trail iii) limitations	ILT SBL	C	Multiple choice
Development Notes:				
Review Comments:				

Lesson: Use of the PGUI Traffic Management Functions	Topic: Functional Keys and Displays	Time: 20 minutes
Training Outcome EE: Upon completion of this lesson, you will be able to utilize the PGUI traffic management functions on a TMA in an operational environment.		

TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, administer the Datablock completely in accordance with the performance criteria checklist.	1) Provide a scenario to build out the Datablock using a checklist 2) Learners should be able to make decisions on how to build the graphical display of the Datablock 3) Explain that this is often driven by preference (TMA Operator's Manual, pp. 359 - 362, Sec. 16.2)	ILT SBL	P	Performance assessment
Development Notes:				
Review Comments:				

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change	Topic: En Route Anomalies and Differences	Time: 15 minutes
Training Outcome HH: Upon completion of this lesson, you will be able to solve problems on an operational TMA.		

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, define Amount of Delay Taken (AMDT) with at least 70% accuracy.	1) Define AMDT local values 2) Factors affecting amount of delay a particular sector can absorb	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 18: Procedures

Lesson: Procedures	Topic: TMA Procedures	Time: 1 hour
Training Outcome JJ: To be determined upon national TMA procedure acceptance.		

TLO 51: To be determined upon national TMA procedure acceptance.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. To be determined upon national TMA procedure acceptance.	1) To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.
Development Notes:				
Review Comments:				

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Course Title: Traffic Management Advisor (TMA) for ATCS Terminal

Course Goal(s): The goals of this course are for the learner to be able to describe how TMA is used to manage metering and explain the impact of controllers' TMA actions on other elements of the NAS as it applies to their job duties.

WBT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 35 minutes
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	WBT ILT refresher	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	WBT ILT refresher	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary	WBT ILT refresher	C	Multiple choice
Development Notes:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, discuss how an aircraft route change affects the system with at least 70% accuracy.	1) Explain how changing an aircraft route affects nearby sectors and the NAS 2) Highlight how decisions and actions impact other airspaces (encourage “a cooperative environment through enhanced global situational awareness”) 3) Give an example of how an arrival over an inbound fix, such as an emergency aircraft, becomes a No Fix and how that affects the TMA schedule	WBT ILT refresher	C	Multiple choice
b. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data	WBT ILT refresher	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>display</p> <ul style="list-style-type: none"> i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90 c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA) d) Scheduling factors e) Scheduling constraints <p>2) Explain the efficiency gained by using TMA</p>			

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
c. Given access to an operational TMA, discuss how TMA adapts based upon wind data with at least 70% accuracy.	<ol style="list-style-type: none"> 1) A radar-based ETA is computed based on the aircraft's current position and velocity estimates given by the surveillance speed, altitude profile of the aircraft to the threshold, and the projected wind 2) Current wind velocity and direction, and temperature information is displayed by altitude and is read from a binary file generated by the Weather Data Processing Daemon (WDPD) every hour 3) WDPD gets the site-specific GRIB file from TMA Remote Weather System (CREWS), converts it to a binary format and broadcasts this file to configured weather Clients (that is PGUI and TGUI) <p>(TMA Operator's Manual, Sec. 17.5)</p>	<p>WBT</p> <p>ILT refresher</p>	C	Multiple choice
Development Notes:				
Review Comments:				

WBT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 40 minutes
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given a runway maintenance issue, identify the method to schedule a blocked interval with at least 70% accuracy.	1) Introduce the scenario for needed runway maintenance; snowfall requires the need to block a runway for one hour 2) Provide the concept of blocking a runway for a specified time (TMA Operator's Manual, pp. 168 - 175)	WBT ILT refresher	C	Multiple choice
b. Given an expanded Status and Schedule window, explain when to specify which airport's aircraft to reschedule with at least 70% accuracy.	1) Satellite airport configurations - when change the configuration at the main airport, it changes the configurations at the satellite airport 2) The default setting is set to Off	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	3) Affects the departure scheduling			
c. Given an expanded Status and Schedule window, identify the Control functions option with at least 70% accuracy.	1) Describe the Control button functions in the upper left area of the window	WBT ILT refresher	C	Multiple choice
d. Given an expanded Status and Schedule window, identify the Display function button with at least 70% accuracy.	1) Status and Schedule Window 2) Display function button is in the upper left corner of the window	WBT ILT refresher	C	Multiple choice
e. Given an operational TMA, identify the F4 panel with at least 70% accuracy.	1) F4 key 2) Internal Departures Window	WBT ILT refresher	C	Multiple choice
f. Given an expanded Status and Schedule window, identify the Configuration and Runway Settings option with at least 70% accuracy.	1) Status and Schedule Window 2) Configuration and Runway Settings option is a button on the right side of the window	WBT ILT refresher	C	Multiple choice
g. Given a line of arrivals, identify how a call for release within the freeze	1) Because the aircraft is within the freeze horizon, high probability of a delay	WBT ILT refresher	C	Multiple choice

TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
horizon populates the TMA schedule with at least 70% accuracy.	2) Can freeze at an identified time so more delays are not caused 3) Take majority of the delay on the ground instead of the air because it's easier to hold them on the ground than to put them in a holding pattern in the air			
h. Given an operational TMA, identify actions for which a Broadcast is required with at least 70% accuracy.	1) Schedule internal departures 2) When TMA is updated, delays on TGUIs will be updated which are different than the delays on controller scopes 3) Need to Broadcast so that revised TMA times are displayed on controller scopes	WBT ILT refresher	C	Multiple choice
i. Given a line of arrivals, explain how to use the F4 panel to schedule internal departures with at least 70% accuracy.	1) Example is that the aircraft might not be to the freeze horizon yet 2) F4 key	WBT ILT refresher	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 5: Status and Scheduling Parameters

Lesson: Status and Schedule Window Scheduling Parameters Identification	Topic: Status and Schedule window	Time: 30 minutes
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.		

TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the end of a TBFM session, explain when it is unnecessary to meter with at least 70% accuracy.	1) List and description of TMIs 2) When a meter session ends, need to associate different tools 3) When metering would be initiated or discontinued, recognize when to use ground stop 4) When ending a metering session using TMA, need to know when to start the TMI initiative 5) Don't meter when don't have to do so	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an adapted TMA, explain what the Meter Fix Speed is with at least 70% accuracy.	1) It is a pre-adapted value 2) Aircraft has to cross the meter fix at a given altitude and a given speed (pre-adapted in local facility adaptation) 3) TMA uses this value to set scheduling and ETAs 4) Adapted speeds need to be communicated to all affected TMC and ATCS users of the system	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 17: Problem Solving

Lesson: Troubleshooting and Adaptation Change	Topic: En Route Anomalies and Differences	Time: 10 minutes
Training Outcome HH: Upon completion of this lesson, you will be able to solve problems on an operational TMA.		

TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given an operational TMA, define Single Gate Free Flow (SGFF) with at least 70% accuracy.	1) The third of three Gate and MFX parameters 2) Located in the Status and Schedule window 3) Provide an example (TMA Operator's Manual, p. 159, Sec. 7.4.3.1)	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

ILT Module 18: Procedures

Lesson: Procedures	Topic: TMA Procedures	Time: 1 hour
Training Outcome JJ: To be determined upon national TMA procedure acceptance.		

TLO 51: To be determined upon national TMA procedure acceptance.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. To be determined upon national TMA procedure acceptance.	1) To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.	To be determined upon national TMA procedure acceptance.
Development Notes:				
Review Comments:				

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Course Title: Introduction to TBFM for TMC Academy

Course Goal(s): The goals of this course are for the learner to be able to describe how TMA is used to manage metering and describe its components as it applies to their job duties.

ILT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 1 hour
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used f) Hardware and software versions	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	ILT	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	ILT	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary	ILT	C	Multiple choice
Development Notes:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data display i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The	ILT	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90</p> <p>c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA)</p> <p>d) Scheduling factors</p> <p>e) Scheduling constraints</p> <p>2) Explain the efficiency gained by using TMA</p>			
Development Notes:				
Review Comments:				

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Course Title: Introduction to TBFM for ATCS En Route Academy

Course Goal(s): The goal of this course is for the learner to be able to describe how TMA is used to manage metering as it applies to their job duties.

ILT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 1 hour
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used f) Hardware and software versions	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	ILT	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	ILT	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM from one airport to another 4) Explain when TBFM may be necessary	ILT	C	Multiple choice
Development Notes:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data display i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The	ILT	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90</p> <p>c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA)</p> <p>d) Scheduling factors</p> <p>e) Scheduling constraints</p> <p>2) Explain the efficiency gained by using TMA</p>			
Development Notes:				
Review Comments:				

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Course Title: Introduction to TBFM for ATCS Terminal Academy

Course Goal(s): The goal of this course is for the learner to be able to describe how TMA is used to manage metering as it applies to their job duties.

ILT Module 1: Introduction

Lesson: TMA Overview	Topic: TMA Introduction and Definition	Time: 1 hour
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.		

TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.

ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, define TMA with at least 70% accuracy.	1) TMA Overview a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used f) Hardware and software versions	ILT	C	Multiple choice
Development Notes:				
Review Comments:				

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given the need for aircraft sequencing, define adjacent center metering (ACM) with at least 70% accuracy.	1) Define adjacent center metering (ACM) 2) Give an example of ACM	ILT	C	Multiple choice
b. Given the need for aircraft sequencing, define miles in trail with at least 70% accuracy.	1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail (FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)	ILT	C	Multiple choice
c. Given access to an operational TMA, define Time Based Flow Management (TBFM) with at least 70% accuracy.	1) Define TBFM, including metering, time based metering, and time based flow metering 2) Explain how TBFM increases safety and efficiency 3) Give an example of TBFM	ILT	C	Multiple choice

TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	from one airport to another 4) Explain when TBFM may be necessary			
Development Notes:				
Review Comments:				

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
a. Given access to an operational TMA, identify the main components of TMA's operational capability with at least 70% accuracy.	1) TMA Operational Capability Overview a) Graphical User Interfaces (GUIs) b) Display System Replacement (DSR) data display i) Meter List: consists of the Aircraft Identifier (ACID), scheduled meter fix/outer metering arc crossing times and projected delay for each aircraft ii) Datablock: continuous Range Readout, the Scheduled Time of	ILT	C	Multiple choice

TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.				
ELO(s)	Technical Content Outline	Instructional Methods and Media	Learning Type	Test Type
	<p>Arrival (STA), and Delay Countdown Time (DCT) can be displayed in the datablock. The Color Preferences and Brightness for datablocks can be adjusted and stored in user preference sets. Default brightness is 90</p> <p>c) Estimated Time of Arrival (ETA) and Scheduled Time of Arrival (STA)</p> <p>d) Scheduling factors</p> <p>e) Scheduling constraints</p> <p>2) Explain the efficiency gained by using TMA</p>			
Development Notes:				
Review Comments:				

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Title: Traffic Management Advisor (TMA) for Users

Goal(s): The Traffic Management Advisor (TMA) for Users presentation is designed to describe the capabilities and purpose of TMA to non-FAA users of the National Airspace System.

CD-ROM: Traffic Management Advisor for Users

TMA Overview

Time: 20 minutes

Topic(s)	Technical Content Outline	Instructional Methods and Media
a. Describe TMA and its purpose	<ol style="list-style-type: none"> 1) TMA Overview <ol style="list-style-type: none"> a)TMA definition and purpose b)Relationship between other Traffic Management initiatives and TMA c)TMA's main components d)Who uses TMA e)Where TMA is used f) Hardware and software versions 	CD-ROM
b. Describe adjacent center metering (ACM)	<ol style="list-style-type: none"> 1) Define adjacent center metering (ACM) 2) Give an example of ACM 	CD-ROM
c. Describe miles in trail when used for sequencing aircraft	<ol style="list-style-type: none"> 1) Define miles in trail: a specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight 2) Give an example of miles in trail <p>(FAA JO 7110.65T, Air Traffic Control, Pilot Controller Glossary)</p>	CD-ROM
d. Discuss how an aircraft route change affects the National Airspace System	<ol style="list-style-type: none"> 1) Explain how changing an aircraft route affects nearby sectors and the NAS 2) Highlight how decisions and actions 	CD-ROM

Topic(s)	Technical Content Outline	Instructional Methods and Media
(NAS)	<p>impact other airspaces (encourage “a cooperative environment through enhanced global situational awareness”)</p> <p>3) Give an example of how an arrival over an inbound fix, such as an emergency aircraft, becomes a No Fix and how that affects the TMA schedule</p>	
e. Discuss how TMA adapts based upon wind data	<p>1) A radar-based ETA is computed based on the aircraft’s current position and velocity estimates given by the surveillance speed, altitude profile of the aircraft to the threshold, and the projected wind</p> <p>2) Current wind velocity and direction, and temperature information is displayed by altitude and is read from a binary file generated by the Weather Data Processing Daemon (WDPD) every hour</p> <p>3) WDPD gets the site-specific GRIB file from TMA Remote Weather System (CREWS), converts it to a binary format and broadcasts this file to configured weather Clients (that is PGUI and TGUI)</p> <p>(TMA Operator’s Manual, Sec. 17.5)</p>	CD-ROM
Development Notes:		
Review Comments:		

2.2 CROSS REFERENCE MATRIX

Table 2 - Cross Reference Matrix

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
Training Outcome A: Upon completion of this lesson, you will be able to define the main components of the Traffic Management Advisor (TMA) in an operational environment.	<p>TLO 1: Given access to an operational TMA, you will be able to define the main components of the TMA with at least 70% accuracy.</p> <p>TLO 2: Given access to an operational TMA, you will be able to explain the concept of TBFM (Time Based Flow Management) with at least 70% accuracy.</p> <p>TLO 3: Given access to an operational TMA, you will be able to discuss how an aircraft route change affects the NAS with at least 70% accuracy.</p>	<ul style="list-style-type: none"> • Explain the goals/purpose of using TMA • Explain the relationship between Traffic Management Initiatives and TMA • How often the system should be run/utilized • Altitude restrictions adaptive • Descent Profiles adaptive • Identify TMA's operational capability • Explain the operational safety gained by utilizing TMA • Continually evaluate TMA efficiency regarding metering • Identify daily procedures (nominal start time, set up) • Describe mapping of impacts across the NAS (from one airspace to the next) • Recognize the need for and make adjustments to the TMA generated schedule
Training Outcome B: Upon completion of this lesson, you will be able to explain each of the	TLO 4: Given access to a GUI, you will be able to describe each of its components within the TMA	<ul style="list-style-type: none"> • Identify the components TMA • Identify TMA Scheduling Terminology

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
Graphical User Interface (GUI) components of the TMA in an operational environment.	with at least 70% accuracy.	<ul style="list-style-type: none"> Define the terminology for peripheral hardware actions
Training Outcome C: Upon completion of this lesson, you will be able to access each of the GUI components of the TMA in an operational environment.	TLO 5: Given access to a TGUI or PGUI environment, you will be able to access each of the GUI components of the TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> Interpret the TMA component differences Match the PGUI phraseology Review the TGUI environment Identify the MOTIF features contained in the TMA software Identify Default files Select Default files
Training Outcome D: Upon completion of this lesson, you will be able to explain the TGUI display tags and symbols on the TMA in an operational environment.	TLO 6: Given a TGUI display, you will be able to explain the colored tags and symbols on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> Discuss how the ETA side of a timeline is formatted with color TGUI Timeline understanding Discuss how the STA side of a timeline can be changed; Discuss how the STA side of a timeline can be manipulated Review the non-controlling TGUI Review the partially controlling TGUI Manually change the schedule Choose an aircraft
Training Outcome E: Upon completion of this lesson, you will be able to identify the PGUI	TLO 7: Given a PGUI display, you will be able to identify the map features on an operational TMA	<ul style="list-style-type: none"> Review the TMA PGUI Display Identify the aircraft symbols

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
display map and features on the TMA in an operational environment.	with at least 70% accuracy.	<ul style="list-style-type: none"> Review the TMA PGUI Display
Training Outcome F & M: Upon completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.	TLO 8: Given a Status and Schedule window, you will be able to identify the scheduling parameters on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> Identify TMA scheduling parameters Identify the blocked intervals Identify Runway Separation Matrix Identify the Call For Release/ESP to accommodate delay on pop ups Use the F4 panel to schedule internal departures Schedule internal departures Schedule satellite departures Identify internal departures Identify spacing between objects
Training Outcome G: Upon completion of this lesson, you will be able to discuss the HOST/ En Route Automation Modernization (ERAM)/ARTS connection on a TMA in an operational environment.	TLO 9: Given an operational TMA, you will be able to discuss the HOST/ERAM/ARTS connection with at least 70% accuracy.	<ul style="list-style-type: none"> Coordination with TechOps/ERAM
Training Outcome H: Upon completion of this lesson, you will be able to explain aircraft scheduling data on a TMA in an operational environment.	TLO 10: Given a TGUI display, you will be able to describe aircraft scheduling data on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> RWYS RWY Assignment RWY Allocation
Training Outcome I: Upon	TLO 11: Given an operational	<ul style="list-style-type: none"> Give example of a tool which

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
completion of this lesson, you will be able to describe TGUI features on a TMA in an operational environment.	TMA, you will be able to recall TGUI features with at least 70% accuracy.	requires TMC or ATC skills <ul style="list-style-type: none"> • Describe working with blocked slots • Describe the effects of wind on TMA • Describe the impact of weather on TMA • Identify when to use miles in trail • Describe when it is appropriate to use to add blocked slots for time adjustments • Describe other tools that work well with TMA • Identify when TMA is off
Training Outcome J: Upon completion of this lesson, you will be able to describe PGUI display capabilities on a TMA in an operational environment.	TLO 12: Given a General Setup Options panel, you will be able to describe PGUI display capabilities on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> • Use the Suppress Map Display function key • Identify Data Tag features • Choose the Map Display features • Create a General Setup Options (F2) overview • VFR Mode/IFR Mode (determine where you meter to) Input • Recall the PGUI map options • Select PGUI features
Training Outcome K: Upon completion of this lesson, you will be able to manipulate the TGUI	TLO 13: Given a TGUI display, you will be able to manipulate the colored tags and symbols on	<ul style="list-style-type: none"> • Use the TGUI • Select the Color Options panel (Color legend)

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
display colored tags and symbols on the TMA in an operational environment.	an operational TMA in accordance with the performance criteria checklist.	
Training Outcome L: Upon completion of this lesson, you will be able to manipulate the features of the PGUI to control the graphical representation of data on the TMA in an operational environment.	TLO 14: Given a PGUI display, you will be able to manipulate the features of the PGUI to control the graphical representation of data on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Use the PGUI • Change content of a Datablock • Show TMA-defined waypoint names as a group • Show the current universal time • Show the scratch pad/message area • Manipulate the range rings by entering values in the boxes • Change the timeline from the left side to the right side • Show the Sequence List display • Use the pointer to resize a GUI display • Select the option to view both TGUI and PGUI displays on one monitor • Use the Front key to toggle the TGUI and PGUI displays on one monitor • Demonstrate the ways Single Aircraft Limited Data can be displayed
Training Outcome F & M: Upon	TLO 15: Given access to an	<ul style="list-style-type: none"> • RMD /TRACON Buffer

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
<p>completion of this lesson, you will be able to identify the Status and Schedule window scheduling parameters on a TMA in an operational environment.</p>	<p>operational TMA, you will be able to discuss the consequences of suspending an aircraft with at least 70% accuracy.</p> <p>TLO 16: Given an operational TMA, you will be able to describe the affect of variations in levels of flow through an ARTCC with at least 70% accuracy.</p> <p>TLO 17: Given the decision to stop metering, you will be able to discuss other traffic management initiatives that might be used in place of TMA with at least 70% accuracy.</p> <p>TLO 18: Given the decision to stop metering, you will be able to describe other TMA tools, commands, and graphs to use in traffic management with at least 70% accuracy.</p>	<p>collaboration between TRACON/ARTCC</p> <ul style="list-style-type: none"> • Identify TRACON Acceptance Rate • Describe graph interpretation • Describe how the system is set up for accurate routes and times • Identify the best data for metering • Identify Stream Classes • Define TM Flow • Terminate metering • Determine under what situations/conditions TMA should be stopped/turned off • Discuss other traffic management initiatives • Identify Outer Meter Arcs • Meter Fix Speed per configuration (MFX) • Using the KVDT, either set up the system to perform metering or identify when

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
		<p>TMA is turned on/off</p> <ul style="list-style-type: none"> • Use adjacent center metering to provide time-based metering capability to neighboring facilities • Display the Meter Fix Speed (MFX) per configuration • Determine the gate and meter fix parameters; Determine the future gate and meter fix parameters • Outer Arcs/ set - either on/off - rarely change -input to turn on or off - have already been determined to be most efficient (would only tweak if something like airspace changed) • Define Fix Posting Area's (FPA's), initial adaptation and MRP files • Describe the Speeds at Points adaptation
Training Outcome N: Upon completion of this lesson, you will be able to perform the steps to swap aircraft on a TMA in an operational environment.	TLO 19: Given an operational TMA, you will be able to perform the steps to swap the scheduled time of arrival of aircraft on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> • Swap aircraft
Training Outcome O: Upon completion of this lesson, you will	TLO 20: Given a Status and Schedule window, you will be	<ul style="list-style-type: none"> • Use the General Setup and Host/ERAM Connection

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
<p>be able to use the Status and Schedule window to configure scheduling parameters on a TMA in an operational environment.</p>	<p>able to configure the HOST/ERAM connection on an operational TMA in accordance with the performance criteria checklist.</p> <p>TLO 21: Given a Status and Schedule window, you will be able to configure TRACON parameters on an operational TMA in accordance with the performance criteria checklist.</p> <p>TLO 22: Given a Status and Schedule window, you will be able to configure the MFX parameters on an operational TMA in accordance with the performance criteria checklist.</p> <p>TLO 23: Given an operational TMA, you will be able to demonstrate techniques to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified by TMA in accordance with the performance criteria checklist.</p>	<ul style="list-style-type: none"> • Determine the TRACON parameters; Determine the future TRACON parameters • TAR - TRACON acceptance rate buttonology • Configure MFX parameters • Issue control instructions to meet the Scheduled times for the aircraft to cross the meter fixes at the STAs specified in the TMC's plan • Determine the control actions required to deliver aircraft across the meter fix at the TMA assigned times • Monitor and comply with crossing times provided by adjacent center metering

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
	<p>TLO 24: Given an expanded Status and Schedule window, you will be able to use the Control function options in accordance with the performance criteria checklist.</p> <p>TLO 25: Given an operational TMA, you will be able to use the F4 Panel to schedule departures on an operational TMA in accordance with the performance criteria checklist.</p> <p>TLO 26: Given an operational TMA, you will be able to</p>	<p>(ACM)/traffic management advisor (TMA)</p> <ul style="list-style-type: none"> • Display metering times on the MDM • Utilize the control functions • Choose Find Aircraft • Choose Airport Configuration Summary • Activate Freeze Horizons • Display Freeze Horizons • Choose Delay Reporting • Choose Print/View Delay Reporting • Choose Special Use Airspace • Choose System Settings Recording • Choose Print/View System Settings • Find a specific aircraft • Locate specific aircraft data • Prioritize the arrivals and departures list • Utilize the display functions • Determine the current airport

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
	<p>reschedule an aircraft on an operational TMA in accordance with the performance criteria checklist.</p> <p>TLO 27: Given an operational TMA, you will be able to prepare TBFM for adapted airports in accordance with the performance criteria checklist.</p>	<p>parameters; Determine the current airport parameters</p> <ul style="list-style-type: none"> • Determine independent scheduling by airport • Identify Runway Matrix Settings • Explain the Interior Nominal routes collaboration between TRACON/ARTCC, already adapted • Determine the airport parameters • Set-up Timed Based Metering for hosted airports and ACM airports
<p>Training Outcome P: Upon completion of this lesson, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on a TMA in an operational environment.</p>	<p>TLO 28: Given a TGUI display, you will be able to manipulate the Aircraft Scheduling window to recalculate aircraft scheduling options on an operational TMA in accordance with the performance criteria checklist.</p>	<ul style="list-style-type: none"> • Determine independent scheduling by airport • Manipulate the Aircraft Scheduling Window • Pre-departure profiles adaptation- every morning set departures for internals • Display a meter list • Identify meter list elements • Utilize Scheduling and Broadcasting features • Define Meter List Alternate Sequence (MLAS) as part of arcs built into adaptation
<p>Training Outcome Q: Upon</p>	<p>TLO 29: Given a TGUI display,</p>	<ul style="list-style-type: none"> • Locate the Help feature

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
completion of this lesson, you will be able to produce data using TGUI features on a TMA in an operational environment.	you will be able to produce data using TGUI features on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Utilize the Quick Keys • Select the Broadcast Status Indicator dialog box • Change the weather input and system parameters • Perform the steps to send out a GI message • Describe the weather based upon the data in the Winds/Temperature panel
Training Outcome R: Upon completion of this lesson, you will be able to identify the options displayed on the PGUI map in an operational environment.	TLO 30: Given a PGUI display, you will be able to identify the options displayed on the PGUI map with at least 70% accuracy.	<ul style="list-style-type: none"> • Identify the options displayed on the PGUI map
Training Outcome S: Upon completion of this lesson, you will be able to modify the options displayed on the PGUI map within the TMA in an operational environment.	TLO 31: Given a PGUI display, you will be able to modify the options displayed on the PGUI map within the TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Use the Display All Center Airspace function key • Use the Display All TRACON Airspace function key • Use the Select a Gate Display function key
Training Outcome T: Upon completion of this lesson, you will be able to create a PGUI display with customized dynamic elements on a TMA in an operational environment.	TLO 32: Given a General Setup Options panel, you will be able to create a PGUI display with customized dynamic elements on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Create a PGUI display
Training Outcome U: Upon completion of this lesson, you will be able to recall the PGUI map	TLO 33: Given a Map Options (F3) panel, you will be able to recall the PGUI map options on	<ul style="list-style-type: none"> • Describe/recall PGUI map options

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
options on a TMA in an operational environment.	an operational TMA with at least 70% accuracy.	
Training Outcome V: Upon completion of this lesson, you will be able to manipulate the PGUI map features and display on a TMA in an operational environment.	TLO 34: Given a Map Options (F3) panel, you will be able to manipulate the PGUI map features and display on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Select PGUI files • Manipulate the map perspective on the PGUI
Training Outcome W: Upon completion of this lesson, you will be able to use the Load Display Files Panel to manipulate files stored on a TMA in an operational environment.	TLO 35: Given a PGUI display, you will be able to use the Load Display Files Panel to manipulate files stored on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Show the Load Display files
Training Outcome X: Upon completion of this lesson, you will be able to identify the sequence lists on a TMA in an operational environment.	TLO 36: Given a PGUI display, you will be able to describe the sequence lists on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> • Describe local requirements associated with resequencing the aircraft in your airspace • Identify the impact of developing a matrix or adjustment chart or adjusting the buffer • Effects of dragging and dropping • Describe methods to lose/gain time; Describe the methods to lose/gain time • Describe the importance of fleet mix • Describe the importance of chasing the rate

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
Training Outcome Y: Upon completion of this lesson, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on a TMA in an operational environment.	TLO 37: Given a PGUI display, you will be able to use the Sequence List Options Panel to manipulate the sequence lists on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Define the Sequence Options categories • Identify the effects of rippling/reshuffling the list • Describe why changing the configuration is important • Select the Display Sequence list • Identify the Sequence List Options • Select Sequence List Options • Choose to save the Sequence Options file • View the Sequence List Options panel
Training Outcome Z: Upon completion of this lesson, you will be able to describe the Timeline Options panel parts on a TMA in an operational environment.	TLO 38: Given a PGUI display, you will be able to define the Timeline Options panel parts on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> • Define the Timeline Options panel • Choose the Timeline Defaults files • Define the Individual Display Options for PGUI timelines
Training Outcome AA: Upon completion of this lesson, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on a TMA in an operational environment.	TLO 39: Given a PGUI display, you will be able to use the Timeline Options Panel to create a PGUI Timeline display on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Select the Quick Copy Feature With Timeline Options • Choose the setting timeline colors • Choose the General Display Options for PGUI timelines
Training Outcome BB: Upon completion of this lesson, you will be able to summarize an	TLO 40: Given a PGUI display, you will be able to summarize an aircraft's Datablock Options	<ul style="list-style-type: none"> • Show the Researcher Control panel • Choose the Datablock Options

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
aircraft's Datablock Options capabilities as shown in the Researcher Control Panel on a TMA in an operational environment.	capabilities as shown in the Researcher Control Panel on an operational TMA with at least 70% accuracy.	panel
Training Outcome CC: Upon completion of this lesson, you will be able to manipulate an aircraft's Datablock element display and color scheme on a TMA in an operational environment.	TLO 41: Given a PGUI display, you will be able to manipulate an aircraft's Datablock element display and color scheme on an operational TMA in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> • Manipulate an aircraft's Datablock element display and color scheme
Training Outcome DD: Upon completion of this lesson, you will be able to identify the PGUI traffic management functions on a TMA in an operational environment.	TLO 42: Given a PGUI display, you will be able to identify the PGUI traffic management functions on an operational TMA with at least 70% accuracy.	<ul style="list-style-type: none"> • Removal of a/c from list • Suspend a/c • Choose to Suspend/Resume an aircraft from normal arrival traffic scheduling calculations • Identify why STARS routes are converted into CTAS routes • CTAS Meter List - DC View • Discuss management of information • DCT/STA with data block from Op Manual - teach how to configure data block; DCT/STA with data block from Op Manual • Identify what Dynamic Planner Options ICD

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
		Software settings are changeable
Training Outcome EE: Upon completion of this lesson, you will be able to utilize the PGUI traffic management functions on a TMA in an operational environment.	<p>TLO 43: Given a PGUI display, you will be able to utilize the PGUI traffic management functions on an operational TMA in accordance with the performance criteria checklist.</p> <p>TLO 44: Given access to an operational TMA, you will be able to manipulate the Datablock to display the information in the scope in accordance with the performance criteria checklist.</p>	<ul style="list-style-type: none"> Record an aircraft's Flight Plan Select the Display TRACON Connection Status checkbox to view available TRACON data Create the graph
Training Outcome FF: Upon completion of this lesson, you will be able to describe traffic flows in an operational environment.	TLO 45: Given access to an operational TMA, you will be able to explain the impact of manipulating the ground delay program to go outside of the EDCT with at least 70% accuracy.	<ul style="list-style-type: none"> Explain the impact of manipulating the ground delay program
Training Outcome GG: Upon completion of this lesson, you will be able to use the EDC tool to manage traffic flows in an operational environment.	TLO 46: Given the EDC tool, you will be able to manage traffic flows in accordance with the performance criteria checklist.	<ul style="list-style-type: none"> Describe traffic flows Use EDC to provide an additional level of miles-in-trail restrictions EDCT (plus or minus five minutes) What EDCT looks like Predict en route traffic flow using EDC Architecture and

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
<p>Training Outcome HH: Upon completion of this lesson, you will be able to solve problems on an operational TMA.</p>	<p>TLO 47: Given a problem on an operational TMA, you will be able to identify the best method to communicate the issue the designated point of contact with at least 70% accuracy.</p> <p>TLO 48: Given access to an operational TMA, you will be able to discuss when it is appropriate to initiate an adaptation change with at least 70% accuracy.</p> <p>TLO 49: Given access to an operational TMA with a technical problem, you will be able to describe what can be done to troubleshoot at a local level with at least 70% accuracy.</p>	<p>TMA</p> <ul style="list-style-type: none"> Identify anomalies Describe problem solving FAST/cadre procedures Discuss when it is appropriate to initiate an adaptation change Use the print screen Describe En Route/Terminal Trajectories adaptation Recovery/Reset Simulation exercises (big red X, etc) Use the print screen AMDT input SGFF – Single Gate Free Flow Free Flow Parameter percentage of TRACON buffer Speed
<p>Training Outcome II: Upon completion of this lesson, you will be able to perform the steps required to communicate anomalies on an operational TMA.</p>	<p>TLO 50: Given an anomaly on an operational TMA, you will be able to perform the steps required to communicate the issue to the designated point of contact in accordance with the performance</p>	<ul style="list-style-type: none"> File tickets

Training Outcome	Terminal Learning Objective(s)	Task(s) Taught
	criteria checklist.	
Training Outcome JJ: To be determined upon national TMA procedure acceptance.	TLO 51: To be determined upon national TMA procedure acceptance.	<ul style="list-style-type: none">• To be determined upon national TMA procedure acceptance.

3 Course Schedule

The course schedules shown below address the ILT. All WBT will be taken no earlier than 2 weeks prior to ILT sessions.

3.1 TRAFFIC MANAGEMENT ADVISOR (TMA) FOR THE CADRE COURSE SCHEDULE

Period	Day 1	Day 2	Day 3	Day 4	Day 5
1	ILT Mod 3	ILT Mod 5	ILT Mod 5	ILT Mod 7	ILT Mod 12
2	ILT Mod 4	ILT Mod 5	ILT Mod 5	ILT Mod 8	ILT Mod 12
3	ILT Mod 4	ILT Mod 5	ILT Mod 5	ILT Mod 8 ILT Mod 9	ILT Mod 12
4	ILT Mod 4	ILT Mod 5	ILT Mod 6	ILT Mod 9	ILT Mod 12
5	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 9 ILT Mod 10	ILT Mod 13
6	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 10	ILT Mod 13
7	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 11	ILT Mod 14
8	ILT Mod 5	ILT Mod 5	ILT Mod 7	ILT Mod 12	ILT Mod 14

Period	Day 6	Day 7	Day 8	Day 9	Day 10
1	ILT Mod 15	ILT Mod 15	ILT Mod 17	ILT Mod 18	ILT Mod 18
2	ILT Mod 15	ILT Mod 15	ILT Mod 17	ILT Mod 18	ILT Mod 18
3	ILT Mod 15	ILT Mod 16	ILT Mod 17	ILT Mod 18	ILT Mod 18
4	ILT Mod 15	ILT Mod 16	ILT Mod 17	ILT Mod 18	ILT Mod 18

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5	ILT Mod 15	ILT Mod 16	ILT Mod 18	ILT Mod 18	
6	ILT Mod 15	ILT Mod 17	ILT Mod 18	ILT Mod 18	
7	ILT Mod 15	ILT Mod 17	ILT Mod 18	ILT Mod 18	
8	ILT Mod 15	ILT Mod 17	ILT Mod 18	ILT Mod 18	

3.2 TRAFFIC MANAGEMENT ADVISOR (TMA) FOR ATCSCC COURSE SCHEDULE

Period	Day 1	Day 2	Day 3	Day 4	Day 5
1	ILT Mod 3	ILT Mod 5	ILT Mod 6	ILT Mod 9 ILT Mod 10	ILT Mod 15
2	ILT Mod 4	ILT Mod 5	ILT Mod 6	ILT Mod 10	ILT Mod 15 ILT Mod 16
3	ILT Mod 4	ILT Mod 5	ILT Mod 6	ILT Mod 12 ILT Mod 13	ILT Mod 16 ILT Mod 17
4	ILT Mod 4	ILT Mod 5	ILT Mod 7	ILT Mod 13	ILT Mod 17
5	ILT Mod 5	ILT Mod 5	ILT Mod 7	ILT Mod 13 ILT Mod 14	ILT Mod 17
6	ILT Mod 5	ILT Mod 5	ILT Mod 8	ILT Mod 14	ILT Mod 17 ILT Mod 18
7	ILT Mod 5	ILT Mod 5	ILT Mod 8 ILT Mod 9	ILT Mod 14 ILT Mod 15	ILT Mod 18
8	ILT Mod 5	ILT Mod 5	ILT Mod 9	ILT Mod 15	ILT Mod 18

3.3 TRAFFIC MANAGEMENT ADVISOR (TMA) FOR TMC EN ROUTE COURSE SCHEDULE

Period	Day 1	Day 2	Day 3	Day 4	Day 5
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1	ILT Mod 3	ILT Mod 5	ILT Mod 5	ILT Mod 7	ILT Mod 12
2	ILT Mod 4	ILT Mod 5	ILT Mod 5	ILT Mod 8	ILT Mod 12
3	ILT Mod 4	ILT Mod 5	ILT Mod 5	ILT Mod 8 ILT Mod 9	ILT Mod 13
4	ILT Mod 4	ILT Mod 5	ILT Mod 6	ILT Mod 9	ILT Mod 13
5	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 9 ILT Mod 10	ILT Mod 14
6	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 10	ILT Mod 14
7	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 12	ILT Mod 15
8	ILT Mod 5	ILT Mod 5	ILT Mod 7	ILT Mod 12	ILT Mod 15

Period	Day 6	Day 7	Day 8	Day 9	Day 10
1	ILT Mod 15	ILT Mod 16	ILT Mod 17	ILT Mod 18	
2	ILT Mod 15	ILT Mod 16	ILT Mod 17	ILT Mod 18	
3	ILT Mod 15	ILT Mod 16	ILT Mod 17		
4	ILT Mod 15	ILT Mod 17	ILT Mod 17		
5	ILT Mod 15	ILT Mod 17	ILT Mod 18		
6	ILT Mod 15	ILT Mod 17	ILT Mod 18		
7	ILT Mod 15	ILT Mod 17	ILT Mod 18		
8	ILT Mod 15	ILT Mod 17	ILT Mod 18		

3.4 TRAFFIC MANAGEMENT ADVISOR (TMA) FOR TMC TERMINAL COURSE SCHEDULE

Period	Day 1	Day 2	Day 3	Day 4	Day 5
1	ILT Mod 3	ILT Mod 5	ILT Mod 5	ILT Mod 8	ILT Mod 12
2	ILT Mod 4	ILT Mod 5	ILT Mod 5	ILT Mod 8 ILT Mod 10	ILT Mod 13
3	ILT Mod 4	ILT Mod 5	ILT Mod 6	ILT Mod 10	ILT Mod 13
4	ILT Mod 4	ILT Mod 5	ILT Mod 6	ILT Mod 11	ILT Mod 14
5	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 12	ILT Mod 14
6	ILT Mod 5	ILT Mod 5	ILT Mod 6	ILT Mod 12	ILT Mod 15
7	ILT Mod 5	ILT Mod 5	ILT Mod 7	ILT Mod 12	ILT Mod 15
8	ILT Mod 5	ILT Mod 5	ILT Mod 7	ILT Mod 12	ILT Mod 15

Period	Day 6	Day 7	Day 8	Day 9	Day 10
1	ILT Mod 15	ILT Mod 17	ILT Mod 18		
2	ILT Mod 15	ILT Mod 17	ILT Mod 18		
3	ILT Mod 15	ILT Mod 17	ILT Mod 18		
4	ILT Mod 15	ILT Mod 17			

5	ILT Mod 16	ILT Mod 17 ILT Mod 18			
6	ILT Mod 16 ILT Mod 17	ILT Mod 18			
7	ILT Mod 17	ILT Mod 18			
8	ILT Mod 17	ILT Mod 18			

3.5 TRAFFIC MANAGEMENT ADVISOR (TMA) FOR ATCS EN ROUTE COURSE SCHEDULE

Period	Day 1	Day 2	Day 3	Day 4	Day 5
1	ILT Mod 5				
2	ILT Mod 5				
3	ILT Mod 5				
4	ILT Mod 5 ILT Mod 6				
5	ILT Mod 15				
6	ILT Mod 17 ILT Mod 18				
7	ILT Mod 18				
8					

3.6 TRAFFIC MANAGEMENT ADVISOR (TMA) FOR ATCS TERMINAL COURSE SCHEDULE

Period	Day 1	Day 2	Day 3	Day 4	Day 5
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1	ILT Mod 5 ILT Mod 17				
2	ILT Mod 18				
3					
4					
5					
6					
7					
8					

3.7 INTRODUCTION TO TBFM FOR TMC ACADEMY COURSE SCHEDULE

Not applicable. This course module will be integrated into the academy curriculum.

3.8 INTRODUCTION TO TBFM FOR ATCS EN ROUTE ACADEMY COURSE SCHEDULE

Not applicable. This course module will be integrated into the academy curriculum.

3.9 INTRODUCTION TO TBFM FOR ATCS TERMINAL ACADEMY COURSE SCHEDULE

Not applicable. This course module will be integrated into the academy curriculum.

3.10 TRAFFIC MANAGEMENT ADVISOR (TMA) FOR USERS SCHEDULE

Not applicable. This presentation will be distributed through CD-ROM and taken as needed.

Supplementary Information

3.11 ACRONYM LIST

This section includes acronyms that both appear in this CDG, and may appear in the final developed courseware.

AAR	Airport Acceptance Rate
AC	Aircraft
ACDF	Adjacent Center Data Feed
ACID	Aircraft Identifier
ACM	Adjacent Center Metering
ADIF	ARTS Data Interface
AGW	ARTS Gateway
AID	Aircraft ID
AMDT	Amount Maximum Delay Time
ARC	Ames Research Center
ARTCC	Air Route Traffic Control Center
ARTS	Automated Radar Terminal System
ASP	Arrival Spacing Program
AT	Air Traffic
ATC	Air Traffic Control
ATCS	Air Traffic Control Specialist
ATCSCC	Air Traffic Control System Command Center
ATCT	Air Traffic Control Tower
ATL	Atlanta
ATM	Air Traffic Management
ATO-E	FAA TMA Program Office

BWM	Bandwidth Manager
CAP	Collaborative Arrival Planning
CFX	TMA Meter Fix
CHI	Computer-Human Interface
CID	Enhanced Aircraft Identification
CIT	Content Integration Team
CM	Communications Manager
CMS	Common Message Set
Config	Configuration
COTS	Commercial Off-the-Shelf
CPC	Certified Professional Controller
CPU	Central Processing Unit
CREWS	CTAS Remote Weather System
CREWS	TMA Remote Weather System
CSC	Computer Sciences Corporation
CTAS Automation System	Center Terminal Radar Approach Control (TRACON)
CURR	Current
Def	Default
DEN	Denver
DEP	Departure
DFW	Dallas/Fort Worth
DP	Dynamic Planner
DSP	Departure Spacing Program
DSR	Display System Replacement

DYSIM	Dynamic Simulation
EDC	En Route Departure Capability
EDCT	Estimated Departure Clearance Time
eLMS	Electronic Learning Management System
eLRep	e-Learning Representative
ELO	Enabling Learning Objective
ERAM	En Route Automation Modernization
ESP	En Route Sequencing Program
ETA	Estimated Time of Arrival
ETMS	Enhanced Traffic Management System
FAA	Federal Aviation Administration
FAF	Final Approach Fix
FAV	Fixed Area Volume
FDAD	Full Digital Arts Display
FDB	Flight Datablock
FP	Flight Plan
FPA	Fix Posting Area
GDP	Ground Delay Program
GFI	Government Furnished Information
GUI	Graphical User Interface
HADDS	HOST ATM Data Distribution System
HCS	HOST Computer System
HDIF	HADDS Data Interface

HID	HOST Interface Device
HJ	Heavy Jets
HNL	HOST Interface Device - National Airspace System LAN

ICD	Interface Control Document
ID	Identifier
ISM	Input Source Manager

LAX	Los Angeles
LJ	Light Jets
LT	Standard Turbo

M&C	Monitor & Control
MFA	Meter Fix Arc
MFx	Meter Fix
MIN	Minutes
MiT	Miles-in-Trail
MMG	Multi Metering Gateway
MMGI	Multi Metering Gateway Interface
MMP	Multiple Meter Points
MP	Meter Point
MPG	Meter Point Group

NAPRS	National Airspace Performance Reporting System
NAS	National Airspace System

NASA	National Aeronautics and Space Administration
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NextGen	Next Generation Air Transportation System
NFDC	National Flight Data Center
NGIP	NextGen Implementation Plan
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service

O3A	Outer-Three Arc
O3P	Outer-Three Point
O4A	Outer-Four Arc
O4P	Outer-Four Point
OE	Operating Environment
OEP	Operational Evolution Partnership
OMA	Outer Arc (or Outer Meter Arc)
OMA	Outer Meter Arc
OOA	Outer Outer Arc
OOOA	Outer Outer Outer Arc
OOP	Outer-Outer Point
OP	Outer Point
OPS	Operational String
ORD	Operational Requirements Document
Orig	Original
OS	Operating System
OSF	Open Software Foundation

PAR	Preferential Arrival Route
PDR	Preferential Departure Route
PGUI	Planview Graphical User Interface

PR	Priority
PVD	Planview Display
RA	Route Analyzer
RDAR	Preferential Departure and Arrival Route
RUC	Rapid Update Cycle (winds)
RWY	Runway
S/SDD	System/Subsystem Design Description
SAR	System Analysis Recording
SBL	Scenario Based Lab
SCM	Single Center Metering
SCORM	Sharable Content Object Reference Model
SGFF	Single Gate Free Flow
SMC	System Monitor and Control (Custom)
SME	Subject Matter Expert
SO	Schedulable Objects
SOW	Statement of Work
SP	Standard Propeller
SSC	Super Stream Class
SSS	System/Subsystem Specification Document
ST	Standard Turbo
STA	Scheduled Time of Arrival
STARS	Standard Terminal Automation Replacement System
STD	Standard Time of Departure
SUA	Special Use Airspace

TAR	TRACON Acceptance Rate
TBD	To Be Determined
TBFM	Time Based Flow Management
TBM	Time Based Metering
TCL	Technical Content Lead
TDL	Training Development Lead
TDP	Training Development Plan
TEC	Tower En Route Control
TFM	Traffic Flow Management
TFMS	Traffic Flow Management System
TGUI	Timeline Graphical User Interface
TGUI	Timeline GUI
THD	Threshold
TLO	Terminal Learning Objective
TMA	Traffic Management Advisor
TMC	Traffic Management Coordinator
TMI	Traffic Management Initiative
TMU	Traffic Management Unit
TRACON	Terminal Radar Approach Control Facility
TS	Trajectory Synthesizer
UR	Unrestricted
URET	User Request Evaluation Tool
UTC	Coordinated Universal Time
VFR	Visual Flight Rules
VHF	Very High Frequency

VOR	VHF Omnidirectional Range
WBT	Web-based training
WDPD	Weather Data Processing Daemon
WJHTC	William J. Hughes Technical Center
WX	Weather Data Acquisition & Processing
ZAB	Albuquerque ARTCC
ZAU	Chicago ARTCC
ZBW	Boston ARTCC
ZDC	Washington ARTCC
ZDV	Denver ARTCC
ZFW	Fort Worth ARTCC
ZHU	Houston ARTCC
ZID	Indianapolis ARTCC
ZJX	Jacksonville ARTCC
ZKC	Kansas City ARTCC
ZLA	Los Angeles ARTCC
ZLC	Salt Lake ARTCC
ZMA	Miami ARTCC
ZME	Memphis ARTCC
ZMP	Minneapolis ARTCC
ZNY	New York ARTCC
ZOA	Oakland ARTCC
ZOB	Cleveland ARTCC
ZSE	Seattle ARTCC
ZTL	Atlanta ARTCC

3.12 ABBREVIATIONS AND GLOSSARY OF TERMS

This section includes abbreviations and glossary terms that both appear in this CDG, and may appear in the final developed courseware.

AAR	Airport Acceptance Rate. A dynamic input parameter specifying the number of arriving aircraft which an airport or airspace can accept from the ARTCC per hour. AAR is used to calculate the desired interval between successive arrival aircraft.
AAS	Advanced Automation System
ACID	Aircraft Identification
AID	Aircraft Identification
ACLT	Actual Calculated Landing Time, the ASP equivalent of TMA threshold STA (scheduled time of arrival). This time is frozen and will not be updated in response the aircraft's progress.
Active track	Describes an aircraft for which radar data has been received.
ADG	ARTS Data Gatherer—component that collects radar information from ARTS.
AN	The standalone TMA analysis tool
ARTCC	Air Route Traffic Control Center (also called —Center). Has the responsibility for the en route portion of IFR flights.
ARTS	Automated Radar Terminal System. Semi-automated air traffic control systems using Univac computers that are programmed to terminal radar facilities of varying intensities and complexities. The tracking system tracks beacon-equipped aircraft and uses a PVD which is equipped with indicator controls, tracked and untracked

targets, system data area, tabular lists, and video map. Manual input comes from trackball, keyboard, and quick-look keys. Besides the display, output can go to a printer. It participates in the automatic interfacility exchange of flight data.

ASD	Aircraft Situational Display
ASP	Arrival Sequencing Program
ATC	Air Traffic Control
Autoswap	Autoswap provides the capability that allows aircraft that are in a holding pattern to be prioritized based on the order that they enter holding.
Beacon code	The 4-digit identifier generated by the ATC computer and assigned to an aircraft by ATC. (Also called Mode-A transponder code or squawk code.) Used to associate radar returns with a particular aircraft.
Blocked time interval	A relatively large block of time (multiple slots) reserved for departures or temporary closure of a runway or feeder gate. Aircraft within such an interval and going to the specified runways or feeder gates are not allowed to have an STA.
Blocked time slot	A relatively small chunk of time reserved for the arrival of a single aircraft. This may be an aircraft that is not yet tracked by the radar, such as an aircraft below radar or one originating at a nearby feeder airport. The amount of time required to be set aside is automatically scaled by the size class of the aircraft.
Broadcast	Whenever TMA schedules an aircraft, it broadcasts (sends) the aircraft arrival information to the appropriate ATC sector positions. The scheduling information includes scheduled arrival time and delay time. This information is broadcast to the sectors primarily for display in the metering list on the sector planview display.

CAP	Collaborative Arrival Planning server provides a high level interface to external clients to receive TMA-derived information. CAP is controlled from the M&C and it will connect to the CM process and receive messages similar in nature to RA, DP, and the GUIs including flight plans, tracks, ETAs, STAs, external interface status, configuration information and metering status information.
CAS	Calibrated airspeed
Center	Air Route Traffic Control Center (also called ARTCC). Has the responsibility for the en route portion of IFR flights.
CM	Communications Manager (program module of the TMA system)
Coordination fix	The position at which an aircraft transitions from one ARTCC to another (analogous to a handoff).
Conflict	Refers to a separation violation. Potential conflicts that can be anticipated by the computer using predicted aircraft positions.
Controller	A person authorized to provide air traffic control service. In direct communication with the aircraft and issuing advisories and commands directly to the pilots. (Compare Traffic Manager Coordinator.)
Corner Post	Equivalent to feeder gate.
Datablock	Refers to the display tag that conveys information such as aircraft id, altitude, and speed on a FAST or PGUI screen.
Delay time	The amount of time that the arriving aircraft must lose to cross the reference (usually, the meter fix) at the assigned crossing
Departure aircraft	Aircraft departing the primary airport with an intended landing at an airport beyond the boundaries of Center

	airspace. (Compare Satellite departure aircraft.)
DME	Distance measuring equipment
DP	Dynamic Planner. TMA program that generates scheduled times for the arrival traffic.
Display Point	An optional arc where ETA and STA may be displayed. ETA and STA at the Display Point are based on a calculated schedule referenced to the Meter Point.
DSP	Departure Sequencing Program
Dwell	To leave the pointer at an on-screen location without clicking the mouse buttons.
EDC	En Route Departure Capability. EDC is an enhancement of TMA that extends its architecture to manage en route traffic flows exiting an ARTCC to an adjacent ARTCC.
EPR	Engine Pressure Ratio (TS term)
EDA	<p>En Route Descent Advisor. A suite of processors that generates clearances for the en route controllers handling arrival flows to meter gates. EDA clearances ensure fuel-efficient and conflict-free descents to the meter gates at specified crossing times.</p> <p>Another component of EDA includes overflight, arrival, and departure trajectory analysis. The EDA Tool displays information about pairs of aircraft predicted to be in conflict.</p> <p>In addition to conflict probability analysis, EDA also offers trial planning features to aid controllers in conflict resolution. This tool is used for transitional airspace operations.</p>
ERM	En route Metering Program
ETA	Estimated Time of Arrival. This is the time at which the aircraft is estimated to cross the runway threshold (or any other specified point). The ETA is determined

without any restrictions imposed by other aircraft.

1. A non-radar-based ETA is derived from an aircraft's flight plan. It is used until the aircraft is tracked by radar.
2. A radar-based ETA is computed based on the aircraft's current position and velocity estimates given by the surveillance speed, altitude profile of the aircraft to the threshold, and the projected wind.
3. (FAA Pilot/Controller Glossary) This is the time the flight is estimated to arrive at the gate (scheduled operators) or the actual runway on-times for nonscheduled operators.

ETD	Estimated Time of Departure. This is the time at which the aircraft is estimated to depart the runway. The ETD is derived from an aircraft's flight plan.
FAA	Federal Aviation Administration
FAATC	Federal Aviation Administration Technical Center
FAF	Final Approach Fix
FAST	Final Approach Spacing Tool. TMA software that provides the TRACON radar controllers with advisories to assist in sequencing and spacing arrival aircraft from the TRACON boundary to hand-off to the air traffic control tower. It takes the form of a planview display.
FCFS	First-Come-First-Served (scheduling method)
FDAD	Full Digital ARTS Display (familiar radar screen, console with trackball) functioning as a controller station, where ARTS is a beacon-tracking system designed for TRACONs, providing the capability to decode beacon data and display symbology such as selected codes and special position identifications.
Feeder fix	1. (TMA) Currently equivalent to metering fix. (All

metering fixes are feeder fixes; not all feeder fixes are metering fixes.)

2. (FAA Pilot/Controller Glossary) The fix depicted on Instrument Approach Procedure Charts which establishes the starting point of the feeder route.

Feeder gate	(TMA) An approach area through which a large amount of air traffic is funneled down into a TRACON. A typical configuration has four feeder gates (called corner posts) distributed evenly around the congested TRACON airspace. See the FAST Procedure Summaries, "Section 1.1 The ATC Environment.
FIR	Flight Information Region. Airspace of defined dimensions within which Flight Information Service and Alerting Service are provided. Loosely: the geographical —footprint of the ATC facility in question.
F-keys	Function Keys. Labeled —F1 through F12 on standard keyboards.
Flow rate	The number of arrivals per hour based on a traffic count.
FMS	Flight Management System. An onboard computer system that helps in flight planning, navigation, and performance management. It uses a large database (of aircraft performance data and airspace data) that is accessed for the aircraft's control and navigation system.
Freeze horizon	The time at which an aircraft's STA becomes frozen and the aircraft is transferred from the schedulable list to the frozen-STAs list. An aircraft is added to this list when its flight time to a certain point (landing or metering fix) first becomes less than the freeze horizon. (Compare scheduling horizon.)
FTA	Fastest Time of Arrival
Gate	1. (TMA) An arrival or feeder gate is an area of

airspace that funnels traffic down to the airport; it starts wide and gets narrow. It can include one or more approach fixes depicted on published instrument approach procedures and charts, through which aircraft will be metered prior to entering terminal air space. For example, a fix for heavy and large aircraft might be coupled with a fix for small aircraft; jointly they would be considered, for example, the northeast feeder gate.

2. In commercial operations, the entry for passengers and staff to the aircraft operations area.

Geopolitical Boundary	A set of map boundaries pertaining to geographical and political areas including but not limited to state lines, lakes, mountain ranges, and major highways.
GMT	Greenwich Mean Time (See UTC)
GUI	Graphical User Interface (generic)
ID	Identification
IAS	Indicated Airspeed
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
ISM	Input Source Manager
Load Graph Display	Plots the number of aircraft predicted to cross a specified reference point (runway threshold, final approach fix, or feeder gate) within a specified amount of time.
Meter Fix Arc (Outer Meter Fix Arc)	A predetermined arc, usually set at the same distance from Meter Fix as the Outer Fix, for which crossing times are calculated, when an aircraft will not travel over an outer fix.

Metering Fix	A fix along an established route where aircraft metering begins in anticipation of the aircraft entering terminal airspace. Normally, this fix is established 10,000 feet above airport elevation at a distance from the airport that will facilitate a profile descent to that airport.
Meter Point	A term referring to a waypoint used when running TMA in EDC mode. A meter point is a point at which EDC will de-conflict aircraft outbound from the Center. When adapted, the Meter Point is used to provide an ETA and STA referenced to the intersection of the aircraft route with the meter point.
Min/MIN	Minutes
Minimum time-to-landing	The earliest time an aircraft can arrive at the runway from its current location and altitude. It is used by the TMA scheduler to determine the earliest feasible time an aircraft can be scheduled to land.
MFT	Meter Fix Crossing Time (ASP)
Nmi	Nautical miles
NAS	National Airspace System. The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations, and procedures, technical information, manpower, and materials. Included are system components shared jointly with the military.
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration, U.S. Department of Commerce
OETA	Original Estimated Time of Arrival. The first valid ETA estimate obtained when an arrival aircraft is first tracked by radar upon penetrating the airspace under consideration.

Outer Meter Arc	<p>An arc that is an adjustable distance (on the order of 50 nmi) from the metering fix. The TMA scheduler calculates aircraft arrival times at the outer meter arc and at the metering fix with the intent to have most of the delay absorbed by the time the aircraft reaches the meter fix.</p> <p>Do not confuse outer meter arc with outer marker, a marker beacon at or near the glideslope intercept altitude of an ILS approach. The OM is normally located 4 to 7 miles from the runway threshold on the extended centerline of the runway.</p>
OFT	Outer Fix Time
OM	Outer marker. A marker beacon at or near the glideslope intercept altitude of an ILS approach. The OM is located approximately 4 to 7 miles from the runway threshold on the extended centerline of the runway.
Outer-Outer Point	An arc defined in adaptation with both range and angular extent, referenced to a Meter Point. When adapted, the Outer-Outer Point is used to provide an ETA and STA referenced to the intersection of the aircraft route with Outer-Outer Point.
Outer Point	An arc defined in adaptation with both range and angular extent, referenced to a Meter Point. When adapted, the Outer Point is used to provide an ETA and STA referenced to the intersection of the aircraft route with the Outer Point.
Outer-Three Arc	An arc defined in adaptation with both range and angular extent referenced to an Outer-Outer Arc. When adapted, the Outer-Three Arc is used to provide an ETA and STA referenced to the intersection of the aircraft route with the Outer-Outer Arc.
Outer -Four Arc	An arc defined in adaptation with both range and angular extent referenced to an Outer-Outer Arc. When adapted, the Outer-Four Arc is used to provide an ETA and STA referenced to the intersection of the aircraft

route with the Outer-Outer Arc.

Outer-Three Point	An arc defined in adaptation with both range and angular extent, referenced to an Outer-Outer Point. When adapted, the Outer-Three Point is used to provide an ETA and STA referenced to the intersection of the aircraft route with the Outer-Outer Point.
Outer-Four Point	An arc defined in adaptation with both range and angular extent, referenced to an Outer-Outer Point. When adapted, the Outer-Four Point is used to provide an ETA and STA referenced to the intersection of the aircraft route with the Outer-Outer Point.
PFS	Profile Selector (program module of the TMA system)
PGUI	Planview Graphical User Interface. A TMA user interface that provides a planview display designed for use by controllers and developers in conjunction with the TMA or FAST software. The PGUI is a user-customizable display providing a communication link through the CM, and allowing display of advisories, aircraft route information, and research data.
Pointer	The movable indicator on a computer screen. The pointer can be relocated on screen by moving the connected computer mouse, track or slew ball.
Preferred IFR Routes	Routes established to increase system efficiency and capacity. They normally extend through one or more ARTCCs and are designed to organize and balance traffic flows. IFR clearances are issued on the basis of these routes, except when severe weather avoidance procedures or other factors dictate. Preferred IFR routes are correlated with SIDs and STARS and may be defined by some combination of airways, jet routes, direct routes between navaids, and waypoints.
PVD	Plan View Display (generic). A computer-generated representation that reflects a given airspace and provides a bird's-eye view of the airspace, its features (such as intersections and routes), and the air traffic

within the airspace.

Quick Keys	Keyboard commands assigned to specific TMA functionality.
RA	Route Analyzer. The TMA software tool that generates aircraft estimated times of arrivals, factoring in radar returns, weather, etc. (program module of the TMA system).
RAR	Runway Acceptance Rate
Rush Alert	Uses a pair of red brackets on a timelines (and/or a flashing red ball) to indicate when the number of aircraft will exceed the maximum airport acceptance rate (or TMC-specified value).
Satellite Airports	Airports that lie within the airspace of a single ARTCC. Usually used in the sense of airports from which aircraft are departing to arrive at the TMA hub airport without going to another air traffic control center.
Satellite Departure Aircraft	Aircraft departing the primary airport with an intended landing at an airport within the boundaries of Center airspace. (Compare Departure aircraft.)
Schedule	The TMA definition is the specific sequence and the corresponding times in which each aircraft shall cross the runway threshold or any other point of reference. It does not refer to the airline's schedule.
Scheduler	TMA software that generates schedules for the schedulable list of aircraft; that is, when an aircraft in the list receives an updated ETA, when a new aircraft is added to the list, or when the TMC makes parameter changes. Thus, the STA of an aircraft in the scheduling window is subject to revision until it passes the freeze horizon.
Scheduling	Refers to the process of determining the sequencing and times at which aircraft should cross the runway threshold or other specified point. Automatic scheduling

	is performed by the scheduler.
Sequencing	A generic term that includes ordering of aircraft along a common path.
SD	Situation Display
SID	Standard Instrument Departure
STA	Scheduled Time of Arrival. An STA is the desired time that an aircraft should cross a certain point (landing or metering fix). It takes other traffic and airspace configuration into account. An STA time shows the results of the TMA scheduler that has calculated an arrival time according to parameters such as optimized spacing, aircraft performance, and weather.
STAR	<p>Standard Terminal Arrival Route. A preplanned IFR air traffic control arrival procedure published in graphic and/or text form.</p> <p>STARS provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.</p>
Stream Class	A particular flow of traffic into a TRACON. For example, all jets through one feeder gate are one stream class; all jets through a different feeder gate are another; all turboprops and pistons through one feeder gate are another; etc. Within a stream class, all aircraft must maintain a specified minimum in-trail separation at the feeder gate. For aircraft in different stream classes, there are no in-trail separation requirements at the feeder gate; they are assumed to be horizontally and/or vertically separated.
SUA	<p>Special Use Airspace.</p> <p>SUAs are defined as airspace wherein limitations may be imposed upon aircraft operations. Examples of SUA areas are:</p> <ul style="list-style-type: none">• Prohibited Areas

	<ul style="list-style-type: none">• Restricted Areas• Military Operations Areas (MOA)• Warning Areas• Alert Areas• Controlled Firing Areas (CFA)• National Security Areas (NSA)
symbolic data	Any non-alphanumeric character such as @, #, and ~, acting as a visual reference to a specific meaning.
TAR	TRACON Acceptance Rate
TATCA	Terminal Air Traffic Control Automation. Refers to the FAA program leading to a near-term national implementation of terminal ATC automation functions prior to implementation of the Advanced Automation System (AAS).
Time-to-landing	The remaining flight time until an aircraft is predicted to cross the runway threshold.
TFMS	Traffic Flow Management System. TFMS provides information processing support for Federal Aviation Administration (FAA) traffic management personnel as they coordinate the use of the National Airspace System (NAS) and respond to conditions of excess demand. TFMS receives information on planned and active flights, generates forecasts of demand from current time to several hours ahead, presents this information to Traffic Management Personnel, and provides automation support to the traffic management initiatives to resolve or ameliorate congestion.
TGUI	TMA's Graphical User Interface. It takes the form of the time-lines display (program module of the TMA system).
TMA	Traffic Management Advisor (software). One of the three major packages of TMA, TMA generates runway assignments, landing sequences, and landing times for

aircraft arriving in Center airspace down to hand-off to the TRACONS. It also assists in runway configuration control and flow management. In the TRACON, TMA alerts the controllers to what's coming and also puts missed approach aircraft and unanticipated arrivals into an orderly sequence.

TMC	Traffic Management Coordinator. A traffic management coordinator balances traffic flows within an ARTCC in accordance with national flow directives and terminal capabilities. There are also TMCs working the terminal environment in order to balance the flow of arrival, departure, and tower-en route aircraft by ensuring that traffic demand does not exceed operational acceptable levels of traffic.
TMS	Traffic Management System (FAA procedural). The Traffic Management System (TMS) mission is the balancing of air traffic demand with system capacity to ensure maximum efficiency in the utilization for the total National Airspace System (NAS), thereby, producing a safe, orderly, and expeditious flow of traffic while minimizing delays. The TMS supports the primary air traffic control mission of separation by providing a more disciplined flow of traffic, whereby aircraft are spaced properly and peaking is reduced. (FAA ATC Handbook 7210.3K)
TMU	Traffic Management Unit. The TMU manages the flow of air traffic throughout the national airspace to achieve the optimum use of the navigable airspace and to minimize the effect of air traffic delays on the user without exceeding operational acceptable levels of traffic.
TRACON	Terminal Radar Approach Control Facility. Concerned with the approach and departure portions of IFR flights in relation to a major airport.
Traffic Count	Provides a count of aircraft expected and planned to be at the threshold and crossing the feeder gate in 10, 15, and 20-minute intervals. The display is a printable table

	overlay.
TTL	Time to land
TS	Trajectory Synthesizer (program module of the TMA system)
UTC	Coordinated Universal Time; also called Zulu time (formerly GMT, Greenwich Mean Time)
Vertex	<p>Last fix adapted on the arrival speed segments. Normally, it is the outer marker of the runway in use. However, it may be the actual threshold or another common point on the approach path for the particular runway configuration. Term used by ASP.</p> <p>(FAA Pilot/Controller Glossary)</p> <p>A vertex is a single reference point. It can be a reference to an airport or a set of runways.</p>
VAR	Vertex Acceptance Rate
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VTa	Vertex Time of Arrival, a calculated time of arrival over the adapted vertex for the runway configuration in use. The time is calculated via the optimum flight path using adapted speed segments.

3.13 LIST OF GOVERNMENT FURNISHED INFORMATION

The following list of information provided by the FAA is listed in alphabetical order according to file name.

Sample TIR.doc

Final TDP for Intro to Terminal Radar_25 Jun 07.doc

tma_operators manual_rel 3.12.0_0511.pdf

TMA Chapter Overview v2 F.doc

Chapter 1 - National TMA Brief F.ppt

Chapter 2 - Overview.ppt

Chapter 2 - Overview_MAD13JUL2010.ppt

Chapter 3 - TGUI v2 F.ppt

Chapter 3 - TGUI v3 F_MAD22JUL2010.ppt

Chapter 4 - PGUI v2 F.ppt

Chapter 5 - Implementation of TBFM F.doc

Chapter 6 - Impacts on ATCS.ppt

Chapter 7 - ACM v2 F.ppt

Chapter 8 - EDC v2 F.ppt

Chapter 9 - Acronyms v2 F.doc

TMA_Tasks_by_User_Group_v6_wc.xlsx

Sample JTA.doc

blank JTA.doc

TMA Data Collection Report Fox Edit.doc

Analysis Guide3 Fox ZDC 3_21.doc

FAA TDP guideliness.doc

FAA Guidelines for training development.doc

FAA Academy Guidelines.doc

028C.pdf

FAA-STD-028C.pdf

sample course report.doc

High Level Course Design.doc

AT Basics CDG D04 16 Mar 11_.docx

Adv TRACON CDG Draft 21 June 2011.docx

Sample Lesson.doc

CDG.doc

CDESIGN2000_A.DOT

cdesign2000.dot

cdesign97.dot

CDESIGN7.DOT

CDESIGN6.dot

blank CDG.doc

3-17-23-2 Definitions (TMA) (Lawrence).docm

3-6-1-7 Display of Traffic Management TMA Information (TMA)
(Lawrence).doc

Analysis Guide PHL 7_19.doc

Analysis Guide ZLA 7_19.doc

Analysis Guide ZOA 7_19.doc

Analysis Guide ZOB 7_19.doc

Analysis Guide ZSE 7_19.doc

Analysis Guide ZTL 7_19.doc

Analysis Guide3 Fox ZDC 7_19.doc

Chapter 1 - National TMA Brief G_MAD06JUL2010.ppt

Content Integration Guide.pdf

eLearning Design and Style Guide.pdf

FAA Section 508 Policy for e-learning.pdf
FAA Section 508 Standards and Guidelines.pdf
PGU student.doc
Recommended Codecs for FAA.pdf
survey2.doc
TMA Training Design Workgroup Information.xls
Roles_Res (15-Dec-2010) v0.xls
3-8-0 Software Build Plan.pdf
3-9-0 Spur1 Design TIM 11-24-08.pdf
CHI_RevisedFinalRevL_chgpages_081308a.pdf
CSC WEB ACCESS.docx
Software Version Description 3-7-1.pdf
bandwidth_test_plan.pdf
sct_bandwidth_test.pdf
IRD Interface Control Document.pdf
Maintenance Handbook.pdf
Operators manual 3-8-0.pdf
Reference Manual 3-8-0.pdf
System Administrator Manual.pdf
Configuration Management Plan.pdf
Quality System Plan QSP.pdf
Software Development Plans SDP.pdf
PGUI_QRC_for_3-8-0_Final.pdf
PGUI_QRG_for_3-8-0_Final_repair.pdf
PGUI_QRG_for_EDC_3-8-0_Final_repair.pdf
TGUI_QRC_for_3-8-0_Final.pdf
TGUI_QRC_for_EDC_3-8-0_Final.pdf

TGUI_QRG_for_3-8-0_Final.pdf
TGUI_QRG_for_EDC_3-8-0_Final.pdf
ARTS Data Interface.pdf
CAP Collaborative Arrival Planning Software.pdf
CM Communications Manager.pdf
DP Dynamic Planner.pdf
GUI Router.pdf
HADDS Data Interface.pdf
ISM Input Source Manager.pdf
M&C Monitor and Control.pdf
PGUI.pdf
RA Route Analyzer.pdf
Simulation Tools - Draft.pdf
TGUI.pdf
TS Trajectory Synthesizer.pdf
WDPD Weather Data Processing Deamon.pdf
Performance Measurement Analysis Report.pdf
SSDD Spiral 3.pdf
SSS_RevisedFinalRevL_072508a.pdf
Table of Equipment (A4 List).pdf
Weather Process Design Description.pdf
Addendum to Ultra 25 Test and Eval.pdf
Technology Refresh Test and Evaluation.pdf
TMA Router Market Survey and Analysis.pdf
TMA_New%20ArchPla_080502.pdf
TMA_New_Arch_TIM_080508_draftFinal.pdf
(Lawrence) 32-17-23-1 Purpose (TMA).docm

(Lawrence) 32-17-23-1 Definitions (TMA).docm
(Lawrence) 32-17-23-1 Responsibilities (TMA).docm
(Lawrence) 32-6-1-7 Display of Traffic Management TMA Information (TMA).docm
(Lawrence) 52-11-1-1 Duty Responsibility (TMA).docm
(Lawrence) 52-11-1-2 Duties and Responsibilities (TMA).docm
(Lawrence) 52-11-1-3 ATCS Compliance with Traffic Management Initiatives (TMA).docm
(Lawrence) 52-4-3-4 Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times (TMA).docm
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